MINISTRY OF SCIENTIFIC RESEARCH AND TECHNOLOGICAL INNOVATION

SCIENCES & TECHNOLOGICAL INNOVATIONS BULLETIN

NATIONAL SCIENTIFIC COUNCIL

G. KABANDA plans

600 millions $

for the Conclave's 47 innovative projects

Lualaba: 65 cases of cholera reported since the beginning of the year in 3 health zones

To the discovering FAYAR 2.0 innovationby MAPENGO Audrey

Minister Gilbert KABANDA takes part in the CATI relaunch ceremony

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Editorial

Self-affirmation: a major challenge for a post-election state

"The self-affirmation is the lever of command to propel the country in all domains (sport, social, economic diplomatic, military and security and even scientific research)"

The history of mankind is paved with many events in which individuals and nations fight to occupy a place of consideration in the eyes of the world. "Self-affirmation" is a necessary prerogative when it comes to talking about oneself, whether as a nation or as an individual.In the sciences of international relations, this notion is vast, because one cannot evoke the notion of "self-affirmation" without also raising the issue of power relations. In the same way that, in international relations, the behavior of states is compared to that of individuals, it is also reasonable to state that "self-affirmation" is essential, in a competitive world, for an individual and also for a state.Science and technology are an important lever of self-affirmation for a state.

Today, many observers conclude that the Congolese state is the one being put to this severe test in view of political events at both national and international level. The country has just held multi-level elections (presidential, national legislative, provincial and municipal) in December 2023,

but the international plan is becoming

even more complicated. Self-affirmation" is fast becoming a problem at the same time an imperative and a major challenge to take up for the Congolese state.

Several decades ago since the Democratic Republic of Congo (DRC) lost its place in the concert of nations. In Africa, the DRC was a bedraggled state, prey to the covetousness of its neighbors and many other world powers. This led to a war being imposed on Congolese soil in its eastern part.

But the Congolese authorities have never agreed to the law of omerta instead, they have given themselves over to an all-out denunciation of this unjust war situation of which the DRC is a victim.

Yesterday, the enemies of the Congo were walking on Congolese soil without a fight or knockout blow; today, since the advent of President Félix Antoine TSHISEKEDI at the head of the country, the matter has become ankylosed. Despite the determination of the perpetrators who change names in their aggressive moves to destroy the DRC in the Great Lakes sub-region, President Félix Antoine TSHISEKEDI has aroused a patriotic surge as never before. This coincided with his re-election for a second term.

This current, it may be said, is aimed at nothing other than "self-affirmation". The Congolese state is setting itself up as a nation to stand in the way of its enemies and aggressors. However, this self-affirmation is a major challenge.

It is the pivot on which the Congolese people expect to live out the President's second five-year term in a way that is reassuring on several levels.

As a state, the DRC is subject to this balance of power, not only to rout its aggressors but also to make its next enemies fearful. At this stage, according to many observers, self-affirmation is inextricably linked to national consciousness. The flame of patriotic enthusiasm lit by the Head of the State is boosted by a national consciousness in order to assert itself on the continental stage. National consciousness is an asset for "self-affirmation". It is the command lever for propelling the country forward in all areas (sport, social, economic, diplomatic, military and security, and even scientific research). In other words, for a state such as the DRC, self-affirmation goes hand in hand with self-sufficiency in all these different the above-mentioned areas. In our opinion, it is through mastering of science and technology, by exploiting and encouraging the creative genius of its sons and daughters that Lumumba's country will succeed.

Professor Pius MPIANA TSHIMANKINDA
The NSC President

Ministers Gilbert KABANDA (SRTI), Patrick MUYAYA (Communication and Media) and Désiré M'zinga (PME) at the presentation of the 47 projects of the Congolese Conclave of Scientific Geniuses to the Press on February 14, 2024.

Activities of the Ministry of SRTI

Conclave of Congolese Scientific Genius

Gilbert KABANDA forecasts a budget of $600 million to finance 47 selected projects

The Minister for Scientific Research and Technologic Innovation, Gilbert KABANDA, declared on Wednesday 14 February 2024 on Congolese National Radio and Television (RTNC) that the budget for the 47 innovative projects selected at the Conclave of Congolese Scientific Genius in in August 2023 amounts to 600 million US dollars. The main aim of these projects is to boost the development of the Democratic Republic of Congo in key sectors of national life.

This is a first for the DRC. During a briefing initiated, as usual, by Patrick MUYAYA KATEMBWE, the Minister of Communication and Media, on the Congolese National Radio and Television, Minister Gilbert KABANDA assured, during his speech, that these projects will indeed have a positive impact on the daily lives of the Congolese people, particularly in terms of the jobs that will be generated when they are implemented, as provided for in the 2024 Budget.

Among the projects selected we note that one is involving the transformation of cassava to produce bread instead of wheat flour, enriched chikwangue to combat malnutrition, and lemonil, a process involving the production of a new product based on two local plants. On the health plan, Professor MUYEMBE showed up with the Autoclave that bears his name to improve sterilization methods for medical equipment using a small 12V battery that can be recharged using solar energy. There is also "Albino Care", designed to protect the skin of people living with albinism. Another project involves the manufacture of Mpose-based oil, which will combat malnutrition. And that's not all. In the same batch of flagship projects, there is also one aimed at promoting, with a view to marketing abroad, the rolling robot system, an ingenious design by Thérèse Kirongozi, a compatriot who could clearly have other initiatives.

For this reason, GILBER KABANDA believes that the time has come to launch a new exodus in the field of scientific research in order to become more competitive on an international level. He firmly hopes to commit the DR. Congo in a new phase of its flight towards emergence, in accordance with the exemplary vision of Félix Antoine TSHISEKEDI TSHILOMBO, the re-elected and invested President of the Republic.

In the light of this litany of details, the financing of all these inventions hovers around 600 million US dollars, while implementation will be ensured in the coming days by the Ministry of Small and Medium-sized Enterprises. In his view, the major challenge is to enable the country to get back on track and regain its continental supremacy, particularly in terms of the economy.

He showed that since 1960, Congo-Kinshasa has been a giant in Africa, with the most powerful economy in black Africa. Even before South Africa. But it was run by foreigners, by Belgian scientists and economists who left in 1960.

After they left, the economy gradually collapsed. The Congolese were inexperienced in economic, scientific and other areas. All the Belgian scientists had left. So, little by little, this scientific intelligentsia had to be reconstituted. Thanks to the Conclave, there were people trained in all fields and they began, each in their own sector, to look for solutions to the country's socio-economic problems, in both the private and public sectors.

When Minister Gilbert KABANDA took over as head of Scientific Research about ten months ago, he called the heads of these public and private centers.

It emerged from his discussions with the heads of the research those public research institutions for various reasons. On the other hand it was rather the private Research Centers and independent researchers who did. As a result, the productions of the latter provided the material, the substance with which to organize the Conclave of Congolese Scientific Genius to revive Congolese intelligence to replace Belgian intelligence.

For the Minister of the RSIT, the Belgian intelligence was dead and the Conclave had to be organized to replace it. The

MSRTI authorities and the press

From left to right, the President of NSC, Prof. MPIANA TSHIMANKINDA Pius, the Secretary General at SRTI Odon NDAMBU MWALANGA and the Director of the Cabinet of the Minister of RSIT, D-S. CHIRISHUNGU CHIZA

replacement was the scientific genius which, for sixty years, rebuilt "the brains to be able to take technology and science in our country", he underlined.

The head of SRTI summed up the Conclave by pointing out that the Conclave gathered around 300 innovators and inventors from the interior of the country, and some from diaspora, who exhibited the products of their research and inventions, he underlined.

At the end of the forum, the members of the selected 47 innovations that can already be consumed as products for the Congolese people in seven or eight areas.

The President of the Republic, Head of State, personally inaugurated and closed the Conclave. On that occasion, he had given instructions to the Government that measures be taken so that from 2024, these 47 inventions and innovations enter the socio-economic life of the country and allow the Congolese people to consume the fruits of their intellectual production "concluded Minister Gilbert KABANDA.

Désiré M'ZINGA, Minister for Small and Medium-sized Enterprises (SMEs), reassured the audience that he would spare no effort to make all these many encouraging innovations more fruitful.

He pointed out that everything is in place to help the Congolese smile again as a result of the benefits of the Conclave.

MAZONO Christian/NSC and Prosp

SEM KABANDA surrounded by his counterparts from Culture, Industry and PT-NTIC

Minister Gilbert KABANDA takes part in the ceremony of the relaunch of TISC

The Minister of Scientific Research and Technologic Innovation Gilbert KABANDA took part in the ceremony of the relaunch of the Technology and Innovation Support Center (TISC) by the Minister of Industry, on 12 March 2024 in Kinshasa.

According to the Minister of SRTI, TISC's mission is to promote and develop innovation and intellectual property, with an emphasis on technology.

It will facilitate the mentoring of Congolese innovators and inventors.

He pointed out that the Center also plays a role of multi-functional role with the World Intellectual Protection (WIPO).

The article will be developed in the next edition.

MAZONO MPIA Christian/NSC

Activities of NSC

NSC organizes training on the elaboration of Strategic Plan (SP) for CGI personnel

The National Scientific Council (NSC) organized a training session on the strategic plan for the personnel of the Congo Geographic Institute (CGI), on 19 February 2024 in the Saint Valentin room of the Mining and Geologic Research Center (MGRC).

Cette activité scientifique a été animée This scientific event was led by the Scientific Director of the Applied and Technologic Sciences Research Center(ATS-RC)Junior KABONGO KANIMBA, He explained that the strategic plan is first a management tool of an institution, for instance Research Center or Research Institute. It contains strategic directions and objectives, priorities, the best actions to be undertaken, expected results and concrete human and material to coordinate actions and activities, and finally, proportional financial resources with the importance of the planned activities.

It is a tool of the plea and dialog with other stakeholders or partners insofar as it provides information on the institution's and priorities.

It serves as a support for agreement with partners on the development prospective of the institution and the priorities to be by mutual agreement.

Finally, he concluded that the SP serves as a planning tool, and as such is a demonstration of demonstrates the active participation in the development of its business sector of activity. It proposes ways for establishing partnerships based on a judicious analysis of the institution's needs.

The development of a Strategic Plan is based on fundamental principles such as flexibility and adaptability to facilitate internal and external changes that may occur implementation. There is also the selectivity of actions, which must focus on the involvement of the main actors concerned by the involved in implementing the plan, and finally, realism, to ensure that only resources and time available to be effective and efficient in achieving the objectives set.

This process normally takes place in five stages in five stages, namely: preparation of the process itself, carrying out the diagnosis of the institution, the analysis of the internal and external environment, designing the strategic framework and defining the device of the follow-up and of the evaluation.

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

The speaker concluded that a Strategic Plan is a good tool for results-based management for research institutions in the DR Congo. They are called to improve their performance in generation and spreading of knowledge. It is therefore indispensable that these research institutions to draw up strategic plans not only to improve their scientific production but also to provide them with a tool of motivation for their personnel and to plea to their supervisory authorities and national and international partners.

This training was participative and questions were asked by the participants and a number of recommendations were formulated.

It should be noted that the NSC initiated these trainings on the SP for research institutions which will lead to the writing of SP of the NSC.

MAZONO Christian/CSN

Reinforcement of capacity for Congolese researchers

NSC organizes a training for HSRC researchers

The National Scientific Council (NSC) organized from 14 to 16 February 2024, training modules for researchers of Human Sciences Research Center (HSRC) in Kinshasa.

These training modules were delivered by several trainers, namely Professor Pius MPIANA TSHIMANKINDA, Professor André WUFELA YAK'OKOLINGO,Professor Benjamin ZOAWE, Master Freddy IPUKA and Georges MABIALA, etc.

The first day had three presentations. The first speaker was Professor André WUFELA, who spoke on "The Researcher and research jobs ". The second speaker, Master IPUKA BADJE, spoke on the subject of "the running of a research institution role, place and missions of researchers". The third presentation by researcher Georges MABIALA dealt with "the responsible management of research data" and "Introduction to the Mendeley software, etc.

The second day had three modules "scientific notoriety, visibility and marketing of researchers based on bibliometric indicators" presented by Prof. Damien TSHIBANGU and "Sources of funding" presented by Prof. Pius TSHIMANKINDA, President of the NSC. This second day of training ended with a presentation by Professor Benjamin ZOAWE, who spoke the audience on "good practices for a successful PowerPoint presentation".

The last day featured three presentations. The first was on the theme of "writing a research project". by researcher Georges MABIALA. The second focused on "From scientific to entrepreneurship" developed by Mr. Reagen N'GOTO. The third, by Professor Pius MPIANA TSHIMANKINDA, who presented a "groundwork of a research project, etc. The third day of training ended by a question-and-answer session, clarifications and explanations on a number of concerns relating to the modules presented.

The President of the NSC also proceeded with the delivery of certificates of participation to researchers.

Let's remind that this training is part of the roadmap known as the "capacitation of researchers", These trainings resumed on 10 January 2024,after being suspended following the strike action launched by the research union bench in 2023.

Let's note that he seminar provided an opportunity to create opportunities for researchers and exchanges between researchers, thereby strengthen links between them

MAZONO Christian/CSN

Echoes of Research Institutes

The AEC organizes an exchange of vows with its personnel

The French Atomic Energy Commission (CEA), as its customary held a ceremony of exchange of vows with its personnel on 31 January 2024 in Kinshasa.

During this activity. The General Commissioner of the CEA, Professor Steve MUANZA KAMUNGA made a speech in front of the entire current CEA community. He assessed the 2023 activities of this Research Institution.

This meeting was culminated in a handshake between members of the management committee and all the staff of the CEA. A friendly cocktail is offered at the end of this ceremony

Mélanie MWAMINI/AEC

Le Batiment Administrative du CGEA

Researcher Heri KADIMA TSHISEKEDI in the middle of a scientific presentation

AEC: Researcher Heri KADIMA TSHISEKEDI leads a scientific conference.

Heri KADIMA TSHISEKEDI, a researcher at the French Atomic Energy Commission (CEA), led a scientific conference entitled " the night of ideas with the CGEA, medical applications" on 31 January 2024 in the cinema hall of the French Institute of Gombe.

In his presentation, he pointed out that medical applications developed at the CGA are like foundation "nuclear energy". the latter is produced by the nucleus of an unstable atom when it is transformed to become stable (transmutation). Nuclear energy is materialized by gamma rays () or charged particles (beta minus "-" or alpha "").

Researcher Heri KADIMA revealed that these medical applications, based on nuclear energy, are used in nuclear medicine. The latter is one of the sections of the CEA. The emissions are used for tests (diagnostics) while the charged particles emitted are useful for some treatment (certain types of goiter, for example).

He pointed out that applications in Nuclear Medicine can be grouped as follows: in vitro tests, in vivo tests and treatment.

In vitro tests are tests carried out on a sample taken from the patient. The nuclear used in this case comes from

radiation emitted by iodine-125.

These tests are used to determine quantities of hormones circulating in the body with a view to diagnosing related health problems:

- to the growth,
- to dysfunction of the thyroid gland,
- to the reproduction,
- to liver cancer,
- to prostate cancer,
- to embryonic cancer,
- to colon and rectal cancer,
- to thyroid cancer.

In vivo tests are tests carried out directly on the patient. The nuclear energy used in this case comes from radiation emitted by Technetium-99m. These tests can be used to obtain images related to the functioning of an organ (brain, thyroid, heart, breasts, lungs, liver, spleen, kidneys or the entire skeleton). The images obtained are called "scintigraphies".

To produce a scintigraphy, it is important to have:

- ray detectors such as a gamma camera ;
- a radio pharmacy laboratory in which a -ray emitter -ray emitter into a drug to form a radiotracer which fits into the metabolism of the organ to be visualized.

The advantage of tests carried out in Nuclear Medicine is the early detection of an abnormality linked to the functioning of an organ.

As for treatment, Nuclear Medicine uses nuclear energy from the emission of - particles emitted by Iodine-131. These particles have the potential to destroy diseased cells. Therefore, some infections related to the thyroid gland (such as hyperthyroidism, simple goiter and thyroid cancer) can be treated in Nuclear Medicine.

The speaker noted by following that the Nuclear medicine of the CEA uses nuclear energy emitted by positron emitters (+) as perspective to increase its potential to diagnose and treat different types of cancer. But this requires the installation of cyclotron, corresponding radiopharmacy laboratories and -ray detectors called TEPSCAN.

He added other perspectives

Such as:

- the use of an antibiotic (ciprofloxacin) to prepare radiotracers to perform scintigraphy of an infection;
- the development of a technique for polycythemia (abnormal increase in blood abnormal increase in red blood cells) to distinguish true from false positives (there are no other techniques for this practice in DR Congo);
- determination of Glomerular Filtration Rate (GFR) by in vitro test to determine the stage of the evolution of renal insufficiency;
- palliative care with Samarium-

153 (emitter of -particles) for end-stage cancer patients suffering excruciating pain caused by metastases;

- the installation, by the CEA, of a multi-diagnostic and radiotherapy center to improve the fight against cancer in the Democratic Republic of Congo(DRC).

Researcher Heri KADIMA concluded that in the fight against cancer in the DRC, the nuclear medicine of the CEA present a significant potential with these particular procedures requiring the use of nuclear energy.

Let's note that this scientific conference was held in the presence of Commissioner General of the CEA, Professor Steve MUANZA KAMUNGA.

Mr. Heri KADIMA TSHISEKEDI is Research Attached and Head of Radioelement Extraction Cells, molecules at the CEA.

Mélanie MWAMINI/AEC

Submission and takeover by NCPIR

The new Vice-President Professor Odette KABENA and the new Executive Secretary NGANGURA AMISI of the National Committee for the Protection of Ionizing Radiation (NCPIP), all designated under the terms of Ministerial Decree n°005/MIN.RSIT/CAB.MIN/CCN/2024 of 18 January 2024, officially took up their posts in Kinshasa

The submission and takeover ceremony to the vice-Presidency of the NCPIR with his predecessor, NAKAMWAMBILA Jacques took place in the presence of the Inspectors of the

Corps of Inspectors of the General Secretariat of Scientific Research and Technologic Innovation, members of the Protection and Security Council and agents of the NCPIR at its headquarters in Gombé township.

Taking the floor, the Professor began by sincerely thanked the Minister of Scientific Research and Technologic Innovation, Dr Gilbert KABANDA, for her appointment as Vice-President of the NCPIR.

She then welcomed the Secretary General to the Scientific Research, Mr. Odon NDAMBU MWALANGA, the outgoing Vice-President Mr. NAKAMWAMBILA, for his expertise and the work he has done, and all the current executives and agents at the ceremony.

Appointed since 18 January 2024, Professor Odette KABENA promises to work together with all the personnel to find a solution for the development of this establishment. The outgoing Vice-President, Mr. NAKAMWAMBILA, as for him, told his successor that the task ahead of her is not easy.

The new breath that she will bring will allow NCPIR to fulfil its missions and its objectives, she added.

It should be noted that the new Vice-President of the NCPIR was, until her appointment, Coordinator and Focal Point of the Chemical, Biological, Radiological and Nuclear Center of Excellence (CoE/CBRN-DRC). She is a biologist and Professor of Universities and Doctorate from the University of Kinshasa (UNIKIN) since 2016.

Professor Odette KABENA offers courses in General Biology, Biology of

Prokaryotes, Protists and Micromycetes, as well as Microbiology in some Higher and University Education establishments.

As for Mr. AMISI, who is taking on the posts of Executive Secretary, he is a son of the company who is joining the NCPIR Management Committee. The SBTI wishes the new team full of success.

Christian MAZONO/NSC

Prof. Odette KABENA, new NCPIR President

RCSARP/LUPUTA organizes an exchange of vows with its personnel

CRSARP /LUPUTA organized a ceremony to exchange of vows with its personnel on 13 January 2024.

During this day, the General Director of RCSARP/LUPUTA, Dr Cyrille Gabriel TSHIAMALA KABEYA, warmly thanked all his personnel. He also took the opportunity to present the activities carried out by the research center in 2023, including a scientific seminar and missions to Kinshasa.

He also urged personnel to work hard, for efforts are appreciated by SRIT authorities to improve working conditions, salaries, laboratory equipment, and office materials.

By the way, the new leading team of the RCSARP/LUPUTA is working hard to make visible this research center, which carries out research into improved ruminant and pig breeding in Luputa.

Consort BELESI/NSC

RCALC/Kisangani: Prof. Chelo Bonaventure holds a scientific conference

On 9 January 2024, Professor Chelo Bonaventure held a scientific conference on the theme of "Secrets for the development of the Congo" at the Research Center into African Language and Culture (RCALC/Kisangani).

In his intervention, the Research Director Professor Bonaventure Chello singled out a number of factors that can drive the development of a country such as the Democratic Republic of Congo. These include urbanization, industrialization, literacy and so on.

Let's note that the conference attracted participants. Many relevant questions were asked and some recommendations made.

The General Director of RCALC/Kisangani, Valéry GELENGE, appreciated the participation of several researchers in this scientific activity

NCPIR: Training for journalists on protection against radioactivity

The National Committee for the Protection of Ionizing Radiation (NCPIR) in collaboration with the Journalists association and Independent editors of the Congo (JAIEC) organized reinforcement training for journalists on the importance of the NCPIR and how to protect themselves against radioactivity, on 19 February 2024 at the Africana Palace hotel in Kinshasa.

This training which took place in Kinshasa with JAIEC realized its project of reinforcement of media men capacitations in partnership with NCPIR.

More than 50 journalists from the press took part in the training. The National President of JAIEC, Théodore LUMU, praised the workshop which allowed journalists to learn more about this research institution and how to protect themselves against ionizing radiation.

These journalists can now inform the public about what they have learned during this training session.

The President of the NCPIR, Professor Florimond NYAMONGA KABANDA, was delighted with the organization of this training, which highlighted what the NCPIR does and how people can protect themselves against ionizing radiation.

During the training, several modules were on the agenda and some recommendations were made on what the press should do for the NCPIR and vice versa. The topics covered were:

- the creation of a network of communicators journalists;
- the organization of interviews and broadcasts with NCPIR authorities;
- the creation of NCPIR accounts on all digital platforms;
- the creation of an inter-activity center;
- Budget prevision for future projects; financing broadcasts and reports in the site;

Family photo: NCPIR President with journalists

- the organization of continuing training modules in NCPIR branches in several provinces where NCPIR is operational;
- the organization guided visits to target sites.

Let's note that learners will receive certificates of attendance in the coming days.

Théodore LUMU

Read for you

International Women in Science Day, 12 February 2024

Engineer Lisette NTUMBA is calling on the Congolese government to grant scholarships to girls who choose to study sciences and technologies.

On the occasion of the International Women Day and Sciences Girls celebrated on 12 February, Assistant and Head of the IT Core at the Interdisciplinary Center for Development and Education, Lisette NTUMBA called on the Congolese government to grant scholarships to girls who choose to study sciences and technologies.

According to her, the Congolese government and its support structures should grant scholarships to girls and women who want to take up science and technology, or who are already in this field, so that they can pursue and complete their studies.

Lisette NTUMBA also underlines that in the family, from an early age, parents, the Congolese government and the community should encourage both girls and boys to take up Technical Sciences, Engineering and Mathematics (STEM) courses, as this field will create jobs in the future. At school, teachers need to talk about women's scientific achievements and contributions in physics, mathematics, computing, etc.

The scientific fields are the areas that will provide the most jobs in the years to come. If we want to see women and girls empowered and deserving to be hired in the future, we had better banish prejudice in STEM and encourage them to get ahead", she said.

Engineer Lisette NTUMBA also stressed that women in this field are not free from prejudice. But it is essential, she said, to be resilient, determined, and to run towards achieving their goals.

Despite the gaps in gender equality in the sciences mentioned by the UN (28% of female engineering graduates, 40% of computer science graduates and 12% of members of national science academies are women), the DRC has become increasingly active in recent years in promoting women in STEM fields.

International Women Day and Girls of Sciences is therefore an opportunity for Nations to promote equal access and participation in science for women and girls.

It should be noted that engineer Lisette NTUMBA has a degree in computer engineering and is Assistant and Head of the Computer Core at the Interdisciplinary Center for Development and Education

7SUR7.CD/Christian MAZONO NSC

Lualaba: 65 cases of cholera reported since the start of the year in 3 health zones

The Head of the Lualaba Health Division, Dr Francis KAMBOL declared on 20 January 2024 that 65 cases of cholera had been recorded (including 1 death) in the health zones of Bunkeya, Fungurume and Lualaba since the beginning of this year 2024).

« So far, the epidemic has been confirmed in three health zones: Bunkeya, Fungurume and Lualaba. We have suspected cases in Manika and yesterday we had a suspected case in Dilala. We are waiting for the results for Manika and Dilala. The first samples from Manika and Dilala were negative. For this year, there have already been 65 cases, and the bulk of the cases are in Fungurume, with 47, including 1 death", said Dr Francis KAMBOL.

According to the latter, the Provincial Government has already made resources available to contain this epidemic.

The government has already provided resources, including a cholera treatment center and cholera treatment units.

Medicines have already been bought. Everything is ready and treatment is free. All cases are treated free of charge", he added.

Doctor Francis KAMBOL called on the population of the province to "scrupulously" observe hygiene measures to combat the disease.

As a reminder, 500 cases of cholera have been recorded in the entire Lualaba Province since the outbreak of the disease, health authorities have revealed

7SUR7.CD/Christian MAZONO CSN

To the discovering FAYAR 2.0 Innovation by MAPENGO Audrey

The FAYAR is an electric car created in Kinshasa by the innovator Madame MAPENGO OSINGA Audrey. Intelligent capable of avoiding accidents, most of which are caused by the uncivil and unconscious behavior of drivers.

The prototype consists of the following elements:
1. Mechanics and design
2. Power electronics
3. Control electronics
4. Programming

Innovator MAPENGO Audrey

Mechanics and design

- The engine

Goodbye turbos, cylinders and injectors. Hello electric motor!

Electric car moves thanks to one or more electric motors powered by a battery. There's no clutch or gearbox, just an accelerator pedal that you press to make the battery deliver power which is then converted into alternating power via a converter. This process generates an electromagnetic field in which a copper coil starts to turn, just like in any small toy electric motor.

- Choice of motor

To minimize mechanical calculations
A choice of a total mass of 500 kg for his prototype, and the characteristics of various electric motors were found on the net. Finally, we found a brushless motor that could tow a mass of 500kg.
That's 3000W of power,
Speed: 4900 rpm,
Torque: 6 Nm,
Voltage: 72V direct current.

- Differential

Why in a curve don't the wheels turn at the same speed!

During its first prototype, the company made the mistake of not having a differential on the rear wheels. He had enormous to negotiate a bend.

A differential is a mechanical system present on all vehicles. In particular, it allows the drive wheels to turn at different speeds to make cornering easier, for example.

The tricycle differential was used equipped with a cable car.

- Steering system

There was a time when to carry out manoeuvres required well-muscled arms. For a good position on the road, the steering system that allows to transmit the force of rotation from the steering wheel to the steering gear (rack and pinion) and then to the wheels.
It was adapted from a steering system recovered from an old car commonly known as a "ketch"

Power electronics

- Controller :

We used a DC motor, to be able to vary its speed we need to use a system that allows varying this voltage to be the controller operates in PWM mode (pulse width modulation).

- Batteries

The difficulty was finding good batteries such as lithium batteries, so she used lead-acid batteries for our car which were cheaper, although they were not good batteries for making an electric car.

Control electronics

A control scheme was produced using a control scheme called FAYAR MONTHERBORD, in which the ESP32 is the basic element to control its system.

Programming

Its own algorithm has been written at our and for this operation with the mastered languages.

Let's note that this innovation by Madame MAPENGO OSINGA Audrey was presented at the Conclave of Congolese Scientific Genius and was ranked in useful order.

MAPENGO Audrey
Innovator

The potential of innovation and entrepreneurship for smarter development in the DRC: challenges and opportunities

Development in the Democratic Republic of Congo (DRC) could be considerably boosted by strategic investment in research and development (R&D), with a particular focus on innovation and entrepreneurship. By putting in place infrastructure such as incubators and accelerators, the DRC can foster the growth of the growth of start-ups and encourage the creation of innovative businesses, thereby an environment conducive to the creation, testing and implementation of new ideas and technologies.

These initiatives would provide financial and strategic support to local entrepreneurs, helping to create jobs and economic growth while strengthening the global competitiveness of the DRC's through its creative and innovative potential as recently demonstrated by the conclave of Congolese genius organized by SEM of the Scientific Research and Technologic Innovation.

However, many challenges need to be taken up to accomplish these opportunities.

In Africa in general and in the DRC in particular, universities and research centers often lack adequate infrastructure and resources to conduct cutting-edge research and to protect their discoveries through patents. In addition, government and private funding for research and development is often inadequate, limiting the ability of researchers to move from the research phase to the market. Lack of expertise in intellectual property (IP) management, complex bureaucratic processes and laws that are ill-suited to African realities can also hamper the patenting and commercialization process.

In the DRC, solutions such as strengthening entrepreneurship training programs,

the development of incubation and acceleration centers, promoting research focused on local needs and strengthening intellectual property can help overcome these challenges.

The concepts of incubators, accelerators and start-ups can play an essential role in transforming scientific research into viable commercial solutions, contributing to the sustainable development of a country. A concrete example of the potential of innovation and entrepreneurship in the DRC can be illustrated by the pharmaceutical sector.

In fact, the DRC possesses exceptional biodiversity, protecting a wide variety of medicinal plants and unique species.

By exploiting this biodiversity, Congolese entrepreneurs could develop natural pharmaceutical products and traditional remedies to meet local health needs while capitalizing on the country's comparative advantages in terms natural resources. Through innovation, these entrepreneurs could create unique medicines and natural products that meet the specific needs of the Congolese population and potentially exportable to other countries. For example, by using medicinal plants endemic to the DRC, local companies could develop treatments for neglected tropical diseases, offering effective affordable solutions for local populations and contribute to the fight against these diseases at world level.

Based on the theory of comparative advantages, the DRC can position itself as a major player in the field of natural medicine and traditional capitalizing on its unique natural resources and developing specialized skills in this field.

This would help the DRC to diversify its economy, create jobs in high value-added sectors and boost its competitiveness on the world market, while preserving and enhancing its natural heritage. It should be noted that during the COVID-19 pandemic, Professor Pius MPIANA TSHIMANKINDA played a crucial role by proposing an appropriate response for management of this disease in the absence of vaccines and curative drugs.

Thanks to the use of artificial intelligence this team has been able to develop innovative to treat patients suffering from COVID-19, demonstrating the innovative potential of DRC researchers in the health sector.

In addition, the same team has developed nutraceuticals, such as Drepanoalpha and DrépaThé, for the treatment of sickle cell anemia, a common genetic disease in the DRC. These advances testify to the DRC's ability to innovate in the medical field and to offer effective solutions to respond to the public health challenges facing the country.

NGBOLUA KOTO-TE-NYIWA,
Ordinary Professor at the Faculty of Science & Technology
Scientific Adviser to the NSC/MSRIT

Public finance and development in the DRC: a broad perspective

Public finances play a crucial role in the economic and social development of our country. They provide us with the essential resources to finance infrastructure, public services, social programs and other initiatives that promote economic growth, reduce inequalities and improve the general welfare of the population.

In a few points, we will briefly develop some of the key aspects of the crucial link between public finances and the nation's development:

First and foremost, there is the stage of mobilizing of resources. Indeed, it is the mobilization that allows increasing or maximizing the income or financial resources of a decentralized or central government.

It can be achieved in different ways, depending on the context and the specific objectives of central government.

Raising public revenue involves the collection of funds through various such as taxes, fees, royalties and loans. Effective mobilization is essential for financing investments in priority sectors such as: education, health, infrastructure and innovation, that are all motors of the nation's economic development.

Here is a brief outline of some of the strategies generally used to raise public revenue mobilization:

Tax policies

We can increase the imposition rates on income, profits of enterprise or consumption.

We can proceed to the widening of tax base by including new taxpayers or by eliminating tax exemptions and deductions.

We can fight against tax evasion and tax fraud to ensure that all taxpayers to pay their fair share of tax.

Pricing policies

Tariffs for public services or goods pro-

vided by central government can be revised to reconcile actual costs or to generate additional revenue.

This can be achieved by introducing new duties or taxes on certain goods or services.

Optimizing non-tax revenues

In this specific ca se, it is about the result of revenue-sharing agreements or licenses to exploit natural resources (ores, oil, gas, minerals, etc.).

There is also the monetization of public assets (land, various infrastructures radio or telephone frequencies, etc.) that will be sold off through privatizations, public-private or concessions.

Public expenditure management Policies

Simply by improving the management of public spending can generate additional revenues that can be reallocated to other priority areas.

In fact, strengthening and management capacities through administrative reforms, modernizing information systems and strengthening tax institutions also contribute to the sound management of public spending.

Stimulating economic growth

The implementation of economic policies that promote growth by investment incentives, structural reforms and measures to promote entrepreneurship and innovation also improves the mobilization tax revenues.

With the promotion of foreign trade and foreign investment, there is a way of stimulating exports and generating more foreign currency.

Resort to innovative financial instruments

Even if this is not yet sufficiently in use in the DRC, theory suggests that issuing sovereign bonds or debt securities improves the mobilization of public revenues by financial markets, whether national or international.

The ultimate choice of revenue mobilization will depend on a variety of factors such as the economic situation, political preferences, institutional constraints and the development objectives set by our country. It is also important to adopt a balanced and sustainable approach in order to ensure long-term financial viability while taking into account socio-economic considerations.

Another essential public finance consideration is the efficient allocation of resources.

This is because when a public financial system is well managed, it enables development priorities of the country by identifying priorities and allocating the necessary funds. This involves striking a balance between current expenditure and long-term investments, as well as between the different sectors of the national economy.

Sound public finances help to maintaining macroeconomic stability. As such, they are an essential pillar for private investment and sustainable economic growth. This requires - it has to be said - manageable debt levels, effective control, and a coherent economic policy. In recent years, the DRC has sometimes succeeded without the other due to a combination of two disruptive factors, namely the covid-19 pandemic and the stalemate of a multifaceted socio-political crisis in its eastern provinces.

We can't conclude without taking a look at social inequalities that only tax policies can satisfactorily address.

Indeed, redistributing income and providing basic social services disadvantaged groups, such as social protection programs, family allowances or healthcare as part of universal health coverage (UHC), can effectively contribute to reducing poverty and inclusive development of the nation.

Public finance is the government's main tool for collecting resources for public services and social programs. However, they also contribute to the redistribution of wealth and reducing income disparities between individuals and socio-economic groups within nation.

Briefly, we could mention some of the mechanisms by which inequality is reduced:

Progressive taxation

This is a system of taxation that imposes higher rates of tax on higher-income taxpayers. In other words, those who earn more pay a higher proportion of their income in tax.

Income redistribution

Tax revenues can be used to finance direct aid to populations health care, public education, etc.

These programs help vulnerable and low-income meet their basic needs and improve their economic prospects reduce inequality.

Wealth tax

Wealth tax (such as property tax, wealth tax, inheritance tax, etc.) target the wealthiest and helps to reduce inequality by preventing inequality by preventing excessive accumulation of wealth and encouraging a better distribution of resources across the population.

Targeted tax policies

Tax policies can be specifically target vulnerable populations. For example, tax credits for low-income workers or family allowances, for example, which inequalities and promotes greater social inclusion.

However, it should be noted that the ability of taxation to reduce inequality depends on a number of factors, including the design of the tax system, its effective levels of tax evasion, public spending evasion, public spending policies and economic and general economic conditions. In addition, debates persist about the fair distribution of the tax burden and the effectiveness of tax policies in reducing inequality without discouraging individual initiative private investment.

A stable and predictable public financial framework can encourage private investment by offering appropriate tax incentives, ensuring legal certainty and providing quality infrastructure. Private investment is often essential to stimulate economic growth, create jobs and innovation.

It should also be noted that a transparent management of national public finance is crucial to ensure the accountability and public confidence in the national development process. Both transparencies in the collection of revenues, the allocation expenditure, but also in the management of a sustainable public debt reduce the risks of corruption and bad governance, which will undoubtedly foster an ecosystem for development.

In a nutshell, it should be noted that well-managed public finances will be a firm pillar of the nation's social development. They will provide the necessary resources to finance investment in infrastructure, public services and social programs that the government wishes to implement, while macroeconomic stability, reducing inequality and encouraging private investment

Professor Floribert NTUNGILA NKAMA
Financial Advisor to the NSC

CENTRES ET INSTITUTS DE RECHERCHE DU SECTEUR PUBLIC EN R.D.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 subsoil 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: bidakamuhoza@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.
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(Congolese 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: jjmuyembet@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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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
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