



**MAURITIUS ACADEMY OF SCIENCE & TECHNOLOGY**

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## **Mauritius Academy of Science & Technology (MAST)**

This special issue carries the first report of our Working Group on  
**SCIENCE & TECHNOLOGY AND SOCIETAL ISSUES**

### **EDITORIAL**

#### **Better data, better decisions**

*Evidence Based Decision-Making is a process for making decisions about practice or policy that is grounded in the best available research evidence and informed by experiential evidence from the field.*

Contrasts with decision making based largely on trying to meet economic goals, trying to implement (political) party-policy and in support of chief and other executives of Government, including attempt for such executives to make money for self and /or for the business/industry in question. And to gain political advantage, to be re-elected. A coming reality example will be the decision to approve/organize a Covid-19 vaccination of the entire population, even ahead of completion of sufficient large scale tests revealing no negative side effects and having effective protection power. Political/national advantages as well as huge monetary profits are in play here. Such decisions must be taken on scientific data and evidence, NOT just other factors, economic or social. Remember the case of USA's FAA approving the 737 MAX before full testing of its new navigation system was made (decision on based on such factors as political pressure, industrial competition and of course profit), sadly resulting, as we all know, to the 2 crashes of new 737 MAX with loss of over 300 lives. Another dramatic case is the scientific work of the IPCC and its definite conclusion about climate change (which led to the Paris agreement between ALL countries of the world to reduce our carbon trail and limit global warming) AND the decision taken in USA under Trump and in Brazil to reject these **science based conclusions** and also international agreement to 'Save the Planet'.

Sense has returned to US policy making with the Biden administration and return to the Paris agreement approved, respecting the overwhelming scientific evidence as to the necessity of such an agreement. This a guide to COP 26 planned for November 2021 to evaluate progress in implementation and develop further actions to 'save life on the planet'.

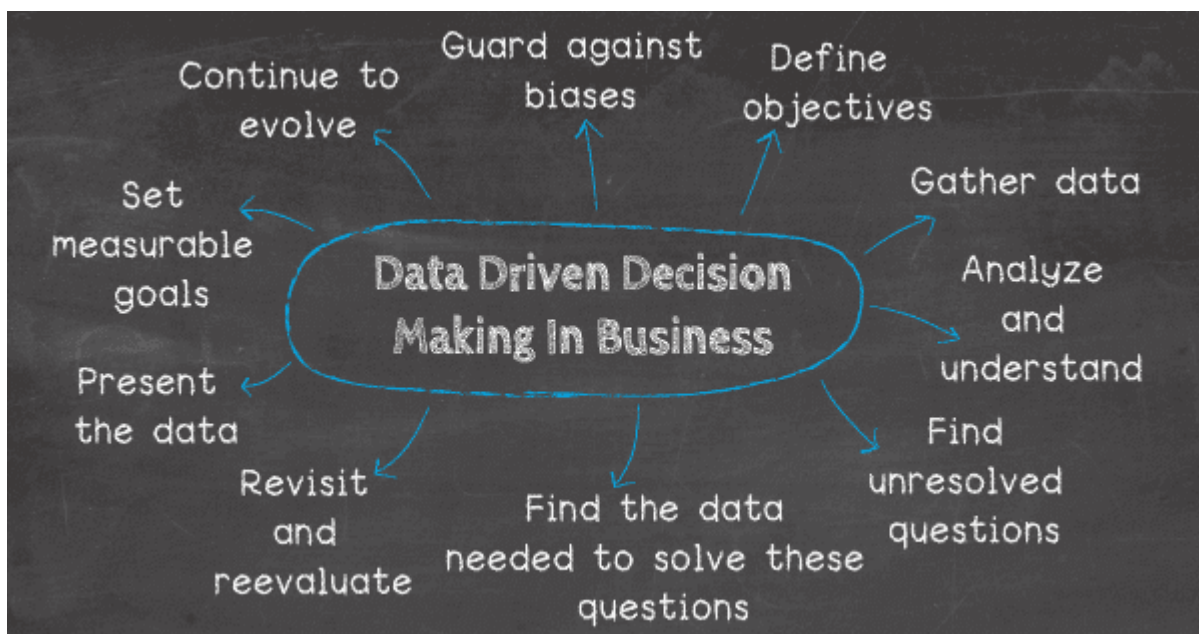
*The world as well as us here must be prepared for a possible next catastrophe, be it another viral pandemic, increased intensity cyclones, tsunamis, radiation accidents or other. The key is preparedness*

To which we add ethical considerations, which are essential element to long-term well-being of individuals, communities, nations.

**Role of academies, research institutions, universities:** an academy as a legal instrument that provides credible science-informed advice to their nations.

**Data-driven decision making (DDDM)** is defined as using facts, metrics, and **data** to guide strategic GOVERNANCE and BUSINESS **decisions** that align with your goals, objectives, and initiatives. ... People at every level have conversations that start with **data** and they develop their **data** skills through practice and application. Two examples of companies – Google and Amazon which use **data** to make **decisions** that increase their success and profitability. They ensure that all **decisions** are based on **data** and analytics.

**Dr Michael Atchia**  
President, MAST



# Mauritius Academy of Science and Technology

## WORKING GROUP ON SCIENCE & TECHNOLOGY AND SOCIETAL ISSUES.

### SUMMARY

True to its mission in strengthening the dialogue between scientists and policymakers, Mauritius Academy of Science and Technology (MAST) Council constituted a Working Group (WG) in Science & Technology and Societal Issues to discuss global themes with a national focus. MAST members and non-members participated in the meetings and their valuable contributions are gratefully acknowledged. The deliberations have been crystalized into policy recommendations that are expected to contribute to our sustainable development. This summary highlights the main matters discussed.

Industrialization for economic growth has led to rapid urbanization with greater demands on resources. Incentives for developers to more readily adopt renewable sources of energy are to be encouraged while town and country planning should be reviewed so as to provide ample green spaces and facilities such as bicycle lanes to discourage usage of cars.

Individualism as the credo is viewed as becoming more and more entrenched in society. Technology is contributing to this state of affairs owing to the rapid development in the area of IT, leading to addiction. Misuse of the mobile phone is an example. Such behavior is promoting tendencies to sedentary life with the consequences of obesity, psychological effects, diseases and more expenses towards health care. It is deemed important to reflect on new technologies prior to adopting them. Such a cautionary approach is to be accompanied by appropriate regulations as safeguards. A healthier lifestyle, devoting time to outdoor activities, is to be prescribed.

Food production is based on only a handful of crops. The conservation of crop wild relatives is deemed fundamental for resilience to cope with climate change, pests, diseases and the need to feed 9.5 billion people by 2015. More research into sustainable agriculture, a change in the mindset of both growers and consumers to pave the way towards organic food production are necessary. Awareness to adopt curricula that favour agriculture, instead of looking down on it as unfashionable, is essential.

With modernization, the village lifestyle of family togetherness is slowly disappearing. Old people are being placed into physical and emotional hardships being left on their own or in homes. Parents are not providing the emotional family support for lack of time. Family values are considered as the bedrock of families, without which there is no empathy, sympathy, cooperation and solidarity. Therefore, bringing back family values and consolidating family ties through family dialogues on a daily basis and socio-cultural activities are vital and the competent authorities need to promote this initiative in their programme.

Health care is becoming very expensive with the escalating practitioners' fees and cost of medicine, whereby those who cannot afford treatment are affected. Side effects of prescribed drugs are quite harmful and it is timely to consider alternative forms of medicine. Research in that area should be encouraged. Ethical issues regarding health care being used as a business have to be addressed and the spirit of vocation in medical practice has to be encouraged. It is felt necessary to improve the public health system, be it with the introduction of a minimal payment, for a better service in hospitals. The increase in the population of the elderly should be given due consideration to address the many issues associated with old age.

The circulation of harmful or hazardous psychoactive substances, including alcohol and illicit drugs is of great concern. The specific causes of substance abuse are unclear, though there seem to be a combination of hereditary, environmental and social factors. Treatment of substance abuse is geared towards abstinence and includes a variety of therapies. Psychotherapy counseling of patients in understanding behavior, motivations, developing self-esteem and coping with stress is an essential element. Self-help groups are very effective and prevention through Drug Education at all level of the education system is necessary. Scientists allied with the medical profession can make the negative effects, at times lethal, of such substances more widely known.

## INTRODUCTION

Meetings of the Working Group (WG) were held between November 2018 and April 2019 under the Chairmanship of Professor S Jugessur. The purpose of the setting up of the WG was to develop policy recommendations that could be of assistance to Government and other stakeholders in making appropriate choices, bearing in mind the environmental, health, educational and sustainability aspects of development. It was also evident that during the deliberations, knowledge gaps would be uncovered and those could be the subject of potential research projects.

The themes forming the Terms of Reference of the Working Group (WG) were reviewed and adopted as guidelines for the ensuing discussions. There was consensus that it would be more appropriate to identify specific aspects of direct relevance to Mauritius, out of the global issues at hand. There was no doubt that Science and Technology have been instrumental in improving livelihood. However, in our eagerness to adopt new technologies, not enough attention has been paid to the negative impacts on society and the WG reflected on this.

MAST is looked upon as the right platform to convey ideas and views to all concerned, in particular to policy makers. It was felt that there should be no hindrance in voicing out opinions for the betterment of the society. Therefore, the WG was invited to act as a think-tank to discuss informally and non-restrictively about the benefits of S&T, while at the same time using technology in a sensible and harmonious manner.

## S&T AND INDUSTRIAL DEVELOPMENT

The positive impact of industrial development cannot be denied and it is natural for people to aspire for a better life and reap the benefits of economic progress. However, industrialization for economic growth and employment opportunities has led to rapid urbanization and greater demands on energy, water, transport and food resources. To meet the energy demands, the use of fossil fuels have primed while there has been slow adoption of renewable resources.

It is necessary to analyse the interface between S&T and society and ponder on the negative consequences so as to take mitigation measures. One can learn from lessons from industrialized countries and use the information to reflect on the consequences for Mauritius.

### **Global warming and climate change**

It was felt that small countries such as island communities couldn't be blamed for global warming associated with industrialization and that they are in fact victims of this situation. However, it is not appropriate to remain inactive and not make the effort to alleviate the negative effects.

How far are the negative effects recognized by society are not clear. The WG was therefore of the view that education in creating awareness is necessary to global warming/climate change. The information should be distilled at an early age to impress upon the new generation so that they can become involved. It is felt that people should reflect on new technologies before adopting them, as otherwise we are unprepared to bear the consequences. Such a cautionary approach should also be accompanied by the right regulations as safeguard.

### **Increase in pollution in cities and its health implications**

The problem of traffic jam in Mauritius was a central point in the deliberations under this theme. It is an example of stress and pollution impacting on our well being. There is urgency in taking bold policy decisions to discourage the use of cars. The example of Singapore was cited where a ban on new cars for the next three years has been established along with strict conditions to purchase new ones. As a solution to this issue, it was felt that the use of bicycles should be encouraged by having dedicated bicycle lanes to promote safety and foster cycling to the detriment of cars. It was suggested that funds under Corporate Social Responsibility (CSR) could be a possible means for part implementation of the infrastructure.

### **Slow development of SMEs**

There is a lack of initiative by researchers and young graduates to venture towards creating their own SMEs, in spite of funding and government support. Education and coaching is necessary to encourage youths in setting-up their start-ups. The project of providing land to young graduates at Plaine-Magnien was viewed as a laudable initiative. One avenue for young graduates is to embark in mass propagation of plants by tissue culture. Wild endemic species and land races of crops are potential candidates to be multiplied.

### **Agriculture and food security**

The concept of economies of scale has led to an increase of large scale production that require intensive farming methods, using chemical fertilizers, insecticides, irrigation and energy supply. Some small scale farmers are finding it difficult to compete.

Only six plants out of 6000 are mainly exploited in food production. It is necessary to explore a wider number of plants and place more emphasis on other crops for their role in food production, given biotic and abiotic vulnerabilities. 'Art of Living' has rediscovered a 2000 years old wheat variety that does not require intensive modern inputs and can be cultivated organically. It is called Wonder Wheat and as opposed to modern wheat varieties, it contains high levels of folic acid.

### **Profit maximization and corruption**

The trend of profit maximization and corruption was attributed to an absence of moral guidance since childhood. Often, this is also due to the influence of industry conglomerates extending their power without considering the people.

From the economic point of view, profit maximization was not viewed as bad. However, in the context of a country such as Mauritius, sustainability is essential. Examples of sustainable development such as those in Singapore, Réunion and Seychelles could be inspired from.

### **Recommendation**

*It is primordial to consider social, environmental and ethical dimensions to better dictate S&T and industrial development.*

*It is recommended that Government should adopt policies to encourage greater use of renewable sources of energy by providing adequate incentives to developers.*

*Sound town and country planning should be enforced providing ample areas for green spaces, to restrict parking and dedicated bicycle lanes to restrict car usage.*

*Examples of successful countries and cities should be followed with strict regulations on the purchase and use of cars.*

*Concrete jungles should be discouraged and the use of environmentally friendly building materials should be researched and promoted.*

*Research into new food and varieties should be encouraged as well as encouraging graduates to start their own SMEs.*

## **CONCRETE FORESTS AND LACK OF SOCIAL INTERACTIONS**

The global statistics illustrate profound demographic changes that are expected to happen. By 2050, the world population would have grown to 9.5 billion people with 70% over 50 years old. Food production would have to be increased by at least 25% to feed this number of people. Three quarters of the global population will live in cities and over 60% will live in small households – alone or just with another person. These will happen in the course of just a few decades from now.

### **Urban settlements**

In the development of any city, harmonious planning for a sustainable development should be at the forefront. The correlation of the mushrooming of concrete jungles and temperature rise is also probably a consequence of such non-harmonious planning without nature parks and forests to act as buffer. The production of cement was referred to as one of the most polluting industries in itself and it is essential to use construction materials that are more environmentally friendly

The specifications in urban planning should include green spaces and planting of trees within the premises of the multi-storey buildings, instead of maximizing profit for land. The Ebène Cyber City was cited as a blatant example of poor planning. Promoters, private sector institutions and authorities should work together for a development pattern that would enhance the well being of citizens.

It was felt that the way to move forward is to showcase examples that have been a success. Measures could therefore be implemented on a small scale and then disseminated to other areas to convince the society.

### **Slow disappearance of village life/Rapid destruction of families**

With modernization, the village lifestyle is slowly disappearing. Families are spread across the world and the nation is facing a problem of brain drain/labour shortage for its development.

One of the factor influencing the break-up of families is too much focus on the education and academic system, rather than on values. However, the association with the education system is not as straight forward as those people without education or jobs are not different in their behavior. Modernization has encouraged the spirit of individualism and consumerism.

The teaching method of ‘go and read about moral values’ rather than teaching these values is not an appropriate approach. There is also the need to discuss serious topics, e.g. anger, in the classroom for better awareness.

Today’s children are emotionally intelligent and are of the ‘feeling’ type, being more sensitive. These emotionally intelligent children have to be managed and this is different from past generations.

Values are considered as the bed rock of families, without which there is no empathy, sympathy, cooperation and solidarity. There is the need to bring back family values and have a different concept of development Parents are not providing the emotional family support for living in harmony owing to lack of time.

There is a necessity to redefine growth not only in terms of GDP, but also in terms of Gross Happiness Index. Lessons should be derived from countries such as Bhutan with the highest Happiness Index.

Spending of time together is important. The concept of ‘Happy Family’ is about sharing of time together and has demonstrated efficacy within one month.

### **Individualism as the credo**

Individualism as the credo was viewed as becoming more and more entrenched and technology is contributing to it. The educational system, stressing on the material angle rather than the spiritual one, needs to be revisited. Education should start with the family and simple measures such as having food together, dialogue, switching off the TV and phones during certain periods ought to be considered.

### **The emotional vacuum of the elderly and the growth of Homes**

The current credo of “You have one life, live it to the full” is an egoistic and selfish concept where elderly are not cared for and they live in an emotional vacuum. They are placed in homes, while the ancestral home is left in a state of abandonment. It was noted with concern that Mauritian leave their parents in hospitals during the end of the year holidays. Planning for the welfare of the elderly that are prone to old age diseases such as Alzheimer is therefore important.

### **Recommendations**

*Bring back family values through family dialogue on a daily basis. The concern Ministry need to promote this initiative in their programme. Socio-cultural activities should be used to strengthen family relationships. In the education system, it is necessary that consideration is given to a balanced socio-economic development of the child.*

## **RAPID DEVELOPMENTS IN THE AREA OF IT**

The IT sector holds promises in transforming our country into a digital economy and improving the quality of life of citizens with innovative and modern technologies.

The rapid developments are leading to addiction to IT for both children and grown-ups. The ability of toddlers to be able to handle mobile phones is a vivid example of the how one can get hooked to the technology. This behaviour is promoting a tendency to sedentary life with the consequences of obesity, psychological effects, disease disorders and more expenses on health care. It is important not to use the technology wrongly and to devote time to outdoor activities. As a corollary to that it is the necessity to restrict private tuition to give more time for children to play outdoors.

### **Recommendations**

*The use of IT, which in itself is not bad, has to be used in its appropriate context as a tool.*

*More outings and outdoor activities should be encouraged.*

## **HEALTH AND INCREASE OF LIFESPANS**

In the World Health Organization Report on Non-communicable Diseases (NCD) Country Profiles for Mauritius, 2018, it is reported that proportional mortality attributed to cardiovascular diseases stand at 33%, cancers 12%, chronic respiratory diseases 9% and diabetes 24%. NCDs are estimated to account for 89% of all deaths. Only around 24% of Mauritian adults aged 25-74 years reported undertaking sufficient physical activity to meet the National Guidelines of 30 minutes of leisure time activity (moderate to vigorous) per day to maintain good health.

In 2017, life expectancy for Mauritius was 74.5 years. Life expectancy of Mauritius increased from 62.9 years in 1968 to 74.5 years in 2017 growing at an average annual rate of 0.35 %. There are some 300 000 under 15 years old, 900 000 between 15-64 years old and 100 000 persons above 64 years old. It is estimated that the proportion of people aged 60 and above will increase from 14.9% in 2015 to 35.1% in 2055. In absolute number, the elderly population will increase from 180 000 in 2015 to 330 000 in 2055, necessitating that special consideration should be given now to this segment of the population.

### **Health care**

Health care was deemed to be very expensive with respect escalating practitioners' fees and cost of medicine whereby those who cannot afford treatment are affected. At times, no medicine is available in hospitals and patients have to buy from elsewhere. Ethical issues need to be addressed regarding health care being used as a business.

### **Side-effects of prescribed drugs**

Side effects of prescribed drugs are becoming more and more of a concern and it timely to consider alternative forms of medicine using natural products. Aryurvedic medicine, where there is a Chair established at UoM, could give a series of talk for awareness to this alternative.

### **Food safety**

The society is conscious of the negative impact of pesticides and its association with disease such as cancers. The example of Rodrigues, where pesticides are no longer used, is a model that Mauritius has to emulate. The promulgation of the Pesticide Utilization Act has been a step forward in regulating how pesticides are applied. However, its enforcement and monitoring is not clear.

The use of trap crops and cover crops to attract harmful and beneficial insects respectively should be encouraged. Placement of natural baits and incorporation of environmentally friendly cultural practices such as mulching should be adopted. The University of Cambridge has announced that marigold can be used to control whitefly in crops. Such measures are necessary to be explored so as to be less dependent on the application of chemicals and pave the way towards organic food production.

There is a necessity to move towards safer food and certification. It is felt that organic labeled food may not be necessarily safe particularly imported food, as no tests are carried out to know whether the organic standards have been met. For Mauritius, there is need for concertation among organizations and private labs for certification of norms.

Concern was however raised regarding production in the organic set up as the incidence of pests and disease could bring a heavy toll on yield, impacting on growers' livelihood. The use of biopesticides is to be encouraged. It was deemed of interest to embark on a research project to find biopesticides from endemic plants in Mauritius. This project would also take on board the social impact on growers.

The pricing policy of organic foods should be reviewed as they are generally prohibitive. In the short term, the society needs to be informed of steps that can be taken to process vegetables, e.g. soaking in sodium bicarbonate, so as to decrease any pesticide that may be present.

The concept of organic food being safe and non-organic as unsafe is not entirely correct and it is more complex. Similarly, processed and ultra-processed food have no proper definition as being natural or not natural. Thus, the best approach is to align with the international norms for the best standard in terms of food safety.

## **Recommendations**

*In Mauritius, it is essential that the landraces of economically important crops is revisited.*

*A change in the mindset of both growers and consumers is warranted to pave the way towards organic food production with initial incentives from government for a healthier lifestyle.*

*Schools and colleges should be encouraged to adopt curricula that favour agriculture and food production, be it on a small scale*

*Indiscriminate use of pesticides should be regulated and awareness on the negative impact of pesticides promoted. The local media should give adequate coverage and put in contribution in educating the population.*

*It is essential to encourage more research in the area of alternative medicines.*

*The spirit of vocation in medical practice has to be encouraged so that expenses incurred by patients are kept within limits.*



## ABUSE OF CHEMISTRY, PHYSICS AND BIOLOGY

Drugs are a major societal problem. Synthetic drugs are not defined and therefore not able to be criminalize. More technology and research are required.

The circulation of harmful or hazardous psychoactive substances, including alcohol and illicit drugs is of great concern. The specific causes of substance abuse are unclear, though there seem to be a combination of hereditary, environmental and social factors. Treatment of substance abuse is geared towards abstinence and includes a variety of therapies. Psychotherapy counseling of patients in understanding behavior, motivations, developing self-esteem and coping with stress is an essential element. Self-help groups are very effective and prevention through Drug Education at all level of the education system is necessary. Scientists allied with the medical profession can make the negative effects, at times lethal, of such substances more widely known.

## ACKNOWLEDGMENTS

*MAST gratefully acknowledge the contributions of Prof. S Jugessur (Chairman), M Atchia, A Beetul, R Bhagooli, U Bhowan, A Dookun-Sauntally, N Joomun, T Juwaheer, D Kaullysing, H Khoodoo, R Ng Cheong, Y Parmessur, S Sauntally, J Soulange-Govinden and R Sultan to the Working Group.*

1.10.2019

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Note : *The Working Group meetings of MAST are continuing in 2021.  
Invitation to scientists, practioners of applied science and social science, to join the Working Group.  
Contact Professor Rama, Secretary of MAST.*

## Technology.

Mauritius has still to define a clear policy vis a vis use of fossil fuels in transport for the future. We have already renewable energy generation policy and in practice the installation of solar energy capacity is proceeding at pace.

What about vehicles on the road, already reaching a saturation point and emitting excessive amounts of carbon pollution? The major advance of course is the fast electric train, but covering so far only a tiny fraction of the network.

A fossil fuel/renewable energy policy for transport is called for. An essential element of the equation are electric vehicles. A recent proposal for incentives for the purchase of electric vehicles made to the Ministry of Finance at the last budget was not retained.

Below are some news in the area , from elsewhere.

## Electric vehicles

### EU to target 30 million electric vehicles by 2030

The European Commission, in a strategy due December 2020, will lay out measures to tackle EU greenhouse gas emissions from the transport sector. Reports speak of 30 million electric vehicles by 2030 and related infrastructure.

According to a draft document seen by *Reuters*, “The EU’s goal of climate neutrality by 2050 cannot be reached without introducing very ambitious measures to reduce transport’s reliance on fossil fuels.” The news agency further quotes the EU Commission estimating that the targets would require “at least 30 million zero-emission vehicles by 2030”.

That is considerably more than the 1.8 million electric and plug-in hybrid vehicles registered in Europe at the end of last year, according to the International Council on Clean Transportation.

The strategy also includes plans for infrastructure as the EC estimates Europe will need three million public charging points and 1,000 hydrogen refuelling stations by 2030. This also points to the program to include fuel cell vehicles. It remains unclear, whether PHEV will form part of the envisioned 30 million vehicle fleet.

The demand for charging stations will please associations and manufacturers who continue to call for infrastructure funding. Correspondingly, the EU promises a “roll-out plan with funding opportunities and requirements” next year. Europe currently has about 200,000 charging points, *Reuters* reports.

**The smarter route to Electric Vehicle metering – LEM’s Direct Current Billing Meter gives charging station providers the ability to deliver a ‘gas station’ like experience, using an LCD display to show real time measurements, energy, alarms and legal data.**



*Jan 4, 2021*

## **South Korea introduces upper limit for EV subsidies**

The South Korean government has decided to stop providing subsidies for electric vehicles that cost more than 90 million won (the equivalent of around 67,800 euros). A further price level will be added confirming what was rumoured over the summer.

The country's Environment Ministry recently allocated a total of 1.005 trillion won (around 750 million Euros) as an EV subsidy budget for 2021. EVs priced below 60 million won (45,160 Euros) are eligible for the full amount of subsidies, but vehicles priced between 60 million and 90 million won (67,750 Euros) will receive only 50 per cent of the full amount. Previously, up to 8 million won (about 6,000 Euros) in subsidies were available per vehicle.

As a result of the price cap, expensive electric vehicles will be excluded from the subsidies. For Tesla, this affects the Model S and X, but the Porsche Taycan, Mercedes EQC, Audi e-tron and Jaguar I-Pace are also no longer eligible for subsidies, with prices ranging from 95.5 million won (EQC) to 145.6 million won (Taycan).

Electric cars currently built locally in South Korea are not affected by the new price classification, at least for the moment. The electric versions of the Hyundai Kona and Kia Niro currently cost less than 50 million won. The price for the Hyundai Ioniq 5, which is scheduled to go on sale later this year, has not yet been determined, so it is not yet clear whether the Ioniq 5 will receive the full or half subsidy rate.

When it comes to imported electric cars, the Tesla Model 3 is the most popular model. In the base version, the vehicle costs 53.69 million won in South Korea, but with the nine million won full self-driving package, the Model 3 is already above the 60 million won mark. The long-range models start at 63.69 million won. Which subsidy these models will now receive depends on the exact wording of the new scheme. In Germany, all Model 3 examples are eligible for the full subsidy rate, as the different powertrains are considered equipment of the 2021 Model 3 and have not been registered as a separate model.

It is still unclear whether a similar solution is possible in South Korea: although the Ministry of Environment has made the decision, it still wants to accept comments on the plan until 19 January and will only then implement the plan.

Last year, criticism of the subsidy scheme arose after 43 per cent of all subsidies applied for in the first half of the year were for Tesla vehicles and not for domestically produced electric cars.

[businesskorea.co.kr](http://businesskorea.co.kr)

*Author: Chris Randall*

## Catalyst transforms plastic waste to valuable ingredients at low temperature.

For the first time, researchers have used a novel catalyst process to recycle a type of plastic found in everything from grocery bags and food packaging to toys and electronics into liquid fuels and wax.

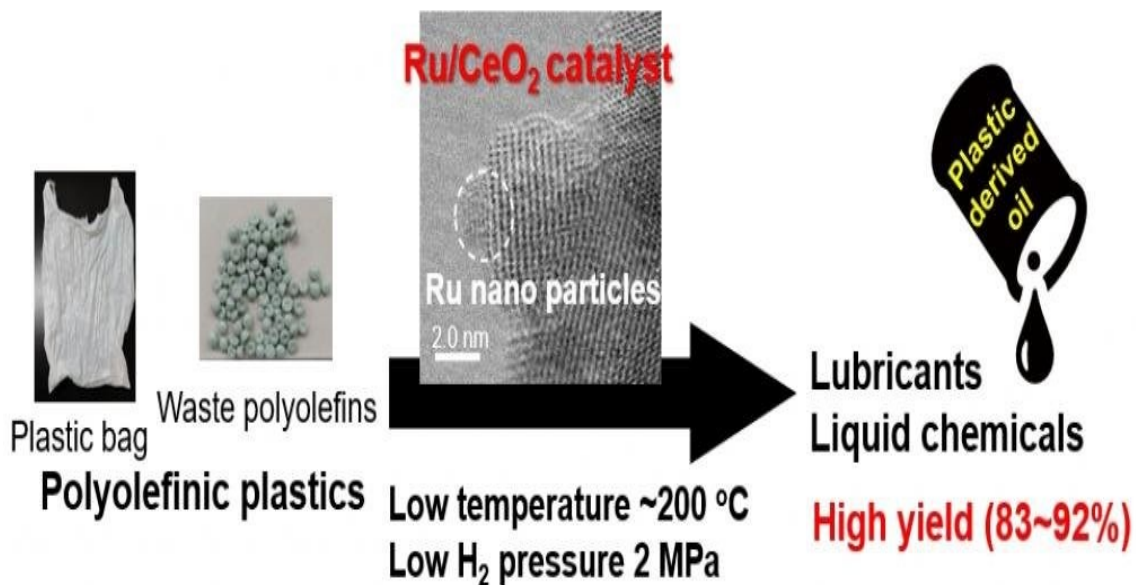
The catalyst system is expected to contribute to not only suppression of plastic wastes but also to utilization of plastic wastes as raw materials for production of chemicals,” the researchers said.

For the first time, researchers have used a novel catalyst process to recycle a type of plastic found in everything from grocery bags and food packaging to toys and electronics into liquid fuels and wax.

The team published their results on Dec. 10 in *Applied Catalysis B: Environmental*.

“Plastics are essential materials for our life because they bring safety and hygiene to our society,” said paper co-authors Masazumi Tamura, associate professor in the Research Center for Artificial Photosynthesis in the Advanced Research Institute for Natural Science and Technology in Osaka City University, and Keiichi Tomishige, professor in the Graduate School of Engineering in Tohoku University. “However, the growth of the global plastic production and the rapid penetration of plastics into our society brought mismanagement of waste plastics, causing serious environmental and biological issues such as ocean pollution.”

Polyolefinic plastics — the most common plastic — have physical properties that make it difficult for a catalyst, responsible for inducing chemical transformation, to interact directly with the molecular elements to cause a change. Current recycling efforts require temperatures of at least 573 degrees Kelvin, and up to 1,173 degrees Kelvin. For comparison, water boils at 373.15 degrees Kelvin, and the surface of the Sun is 5,778 degrees Kelvin.



## **MAST Statement on COVID-19 in Mauritius - August 2020, as widely circulated.**

*This policy brief was prepared by a Working Group of 11 scientists from MAST, under the leadership of Dr D. Caussy, aimed at providing evidence-based arguments relating to COVID-19.*

CoVID-19 is a viral disease caused by a hitherto unknown coronavirus called SARS-CoV-2 that was first isolated in Wuhan China in January 2020. In the intervening 6 months, the disease has circumvented the globe, resulting in some 22 million cases and some 782,000 deaths, bringing travel and trade to standstill and plummeting the stock-market. In Mauritius, the first case of SARS-CoV-2 virus was detected on March 8 and the authorities instituted drastic public health measures resulting in only 344 registered cases, 10 mortalities including 2 frontline workers and a cure rate of 98%. The last indigenous case was recorded on the 26 April 2020 and since then the island has remained free from community-level transmission of SARS-CoV-2, despite the importation of 12 cases among repatriated residents. However, with the re-opening of the borders, the situation has to be carefully monitored and a resilient policy has to be adopted.

A number of information pertaining to the virus has emerged since the outbreak began and this include the role of asymptomatic subjects in spreading the virus; the air-borne transmission mode, the survival of the virus on various surfaces, and the public health importance of social distancing and wearing masks combined with testing and isolation in interrupting the chain of transmission. On the other hand, there still exists many information gaps with regards to seasonality and role of antibodies in conferring long terms protection. Risk management for COVID-19 is wrought with many pitfalls and policy makers have to strike the right balance between being precautionous on one hand and not unduly raising fears on the other hand.

Academies serve as beacons for providing sound scientific assessment and best available contemporary evidence based as recommendations to national authorities in the formulation of national policy. The purpose of the present MAST statement is to clarify priorities for actions to prepare for, control and mitigate the health consequences of COVID-19 and to contribute in providing the impetus for change. The main messages are:

### **Health Sector Response**

#### **Adopting a Health in All (HiAP) policy for management of COVID-19**

A sector-wide approach must be adopted during policy formulation for management of COVID-19: health is inextricably linked to economic development; a healthy population is an economically productive population a wealthy population is a healthy population. Economic development is in turn intertwined with other sectors particularly educational and agriculture therefore one has to adopt a health in all policy when dealing with COVID-19. We have to protect our borders from risks of emergence during travel, while concomitantly protecting our economies and livelihood, without jeopardising our schools and other educational institutions.

#### **Conducting an independent review of progress so far**

In preparation for reopening of our territories, we must anticipate and protect the country for further waves of COVID-19 or future pandemics. We need to review lessons learnt from other countries which have reopened too soon, by conducting a comprehensive, independent and impartial evaluation of the COVID-19 management focussing on identifying weaknesses and strengths, and lessons learnt. This evaluation can be undertaken by a panel of international and national experts including MAST, focusing on three areas: governance and decision making, scientific and technical advice, and operational capacity.

#### **Formulating a fully fledge pandemic preparedness plan**

The global situation is fast evolving and Mauritius has to constantly undertake its risk assessment to enable confinement and mitigation actions to be activated when necessary. The blueprints for these can be embodied by formulating a comprehensive pandemic preparedness plan that resonates the different phases of the pandemic with well-defined goals, targets and deliverable, resonating with different phases of the pandemic.

**Opening the border must be carefully planned.** Opening the borders has a myriad of implications as travellers will often come from multi-segment journeys with varying risk profiles. The use of continually updated 'safe travel corridors' combined with entry and exit testing have to be taken into account. Therefore, the pandemic preparedness plan must not only have defined components for opening our borders, but it must also include contingency provision for totally or partially closing the border if the epidemiologic situation deteriorates to re-emergence of more aggressive second wave. This can be ensured by strengthening the health system for controlling points of entry, screening, laboratory testing, surveillance, risk communication, training of health care workers and containment of imported cases by isolation, combined with active case search and contact tracing and appropriate treatment.

### **Innovating and promoting digital technology for surveillance**

It is well established that surveillance through early case-detection and contact tracing limit the spread of the pandemic. We have to adopt a paradigm shift from classical contact tracing to the use of digital technology. Surveillance can be enhanced by using digital technologies on smart phones to locate sources of infection or re-emergence in large crowd gathering, social events and places of work like educational institutions, hotels and factories and thus eliminate the foci of infection.

**Sustaining and promoting proven public health measures.** There is wide of evidence to support the role of public health measures such as wearing mask, practising social distancing and ensuring environmental disinfection in attenuating the spread of the virus. These measures should be continually used until the global situation has improved or a universal vaccine has been found.

**Education sector response.** In order to ensure no education disruption, a paradigm shift in learning (e-learning and distance learning) with a right mix of active teaching and learning approaches, including new distance-learning pedagogies and appropriate assessment policies are required. The existing education infrastructure must be reviewed. Strategic planning and mobilisation of resources to ensure timely capacity-building for teaching/non-teaching staff, provision of appropriate education and support structures/mechanism for assessment

**Agriculture sector.** The pandemic has highlighted our dependency on food imports and the necessity to boost local agricultural production, aiming at import substitution.

A national awareness is necessary to promote and plan the cultivation of fruits and vegetables. Enabling policies to bring more land under cultivation, encouraging agro-processing and access to markets are necessary.

**Creating and enhancing partnerships.** In order to achieve coordinated action to deal with the pandemic of COVID-19, Mauritius must develop and forge partnership at all levels, ranging from local, national, to international ones across relevant disciplines and sectors.

**Conducting Research to generate evidence for action in Mauritius.** The COVID-19 is a novel virus and scanty information is available on its epidemiology, health impacts and treatment in the Mauritian context. We need information on the frequency of asymptomatic carriers, their duration of infectiousness and their roles in spreading the virus. We also need to know what local factors determine the severity of the disease and types of drugs will work in reducing the complications resulting from infection.

Research in these areas should generate evidence to inform policymaking and provide new tools to control disease and to support program implementation

**The Social Impacts of COVID-19 Mauritius .**COVID-19 outbreak affects disproportionately affect the vulnerable population, including people living in poverty situations, older persons, persons with disabilities and the youth. Comprehensive, universal social protection systems must be in place to protect workers and in reducing the prevalence of poverty

Understanding the 'next normal' consumers after Covid 19 outbreak.

The period of contagion, self-isolation, and economic uncertainty has changed the way consumers be have and these rapid shifts have important implications for any consumer-facing company.

Companies have an opportunity to help shape the next normal. Companies must rethink how and where they connect with consumers. Overall consumption is shrinking, the shopping basket is undergoing a significant change in mix, and consumers are changing the ways they get their information.

Public health and uncertainty about the length of the pandemic has become the primary consumer concerns during the lockdown and self-care has climbed up the priority list for most consumers. Companies will need to adapt to fundamentally different consumer preferences and behaviours

Consumers are staying home in droves and tourism has been almost entirely grounded, with airline travel declining 90 percent overall. Domestic travel must be promoted as consumers start summer vacations.

Gen Z, for example, which had a high degree of digital adoption pre-COVID-19 are much more likely to be economically impacted by the crisis due to their disproportionate exposure to self-employment.

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*Dr M. Atchia (President), Pr R. Ramma (Secretary) of MAST, 20<sup>th</sup> August 2020.*



**Mauritius  
Academy of  
Science and  
Technology**

**REPORT on the FORUM/DEBATE entitled “THE CHALLENGE  
OF KEEPING MAURITIUS COVID-SAFE”**

**Date held: Thursday 12<sup>th</sup> November 2020**

**Venue:** BONAME HALL, MSIRI, Reduit, Mauritius.

**Time: 13:30 to 15:30.**

There were 4 speakers, followed by interventions from the floor and an open debate.

**Speakers:**

**Dr DEORAJ CAUSSY**, Fellow of the Academy, Epidemiologist

**Dr THANIKA JUWAHEER /Dr ROBIN NUNKOO**, University of Mauritius.

**Mr KEVIN RAMKALOAN**, Director, Business Mauritius.

The debate was chaired by the President of the Academy, **Dr Michael Atchia**, with concluding remarks and vote of thanks by **Dr Yousuf Maudarbocus**, Past President MAST.

*Tea and refreshments were served after the closure of proceedings.*

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\*The Secretary of MAST, **Pr Y. Ramma** ([y.amma@mie.ac.mu](mailto:y.amma@mie.ac.mu)) registered participants to the FORUM, numbering 101 persons, and which included scientists, medical doctors and pharmacists, economists, educators, as well as representatives from the business and tourism sectors, from government, from IMF, from the Royal Society of Arts and Science, from aviation (See list in appendix). The press was well represented and the event covered, to different extents, by *Le Defi Quotidien* and *Le Mauricien* of 13.11.20 and by MBC.

Attached to the invitation was a summary of MAST first Policy brief on COVID 19, dated 20<sup>th</sup> August 2020, for reference.

This Forum was organized and held in the context of the project “*Dissemination of Policy Briefs on Covid-19 non-pharmaceutical interventions*” of the *International Science Council*, ISC and South Africa Academy of Science, ASSAf.)

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## Proceedings:

In the presence of all members of Council of MAST and a full hall of participants, the Chairman, Dr Atchia, opened the event at 13:30, with words of welcome and stressing the importance of today's debate in the context of the COVID pandemic.

He presented a slide giving data on just 3 countries of the world to strengthen the need (the subject of today's debate) to keep Mauritius COVID SAFE.

**WINNING THE BATTLE: Mauritius Total Cases: 453, New/Day: 0**

**NEED FOR ACTION : South Africa Total Cases: 740,250, New/Day: 1,600**

**RED ALERT: USA Total Cases: 10,252,100, New/Day: 121,100**

The speakers and the perspective the specific perspective from which they would address the audience were then introduced. The participants were asked to keep their questions and comment for after the speakers had make their brief presentations, all with the support of power point illustrations.

**Dr Caussy**, Epidemiologist addressed the situation of Mauritius as a COVID-19 safe state since April 2020, commenting in particular on the immediate future regarding opening of our frontiers , as well as the situation regarding health care (specialists and equipment at our hospitals, quarantine centres in hotels, Government's Covid monitoring Committee etc) and the realistic hope for a vaccine. He covered the Health Sector Response (adopting a Health in All (HiAP) policy for management of COVID-19), formulating a fully fledge pandemic preparedness plan where the re- opening the border must be carefully planned, as well as adapting innovative digital technology for surveillance. He also addressed the need to creating and enhancing new partnerships: in order to achieve coordinated action to deal with the pandemic of COVID-19, Mauritius must develop and forge partnership at all levels, ranging from local, national, to international ones across relevant disciplines and sectors, as well as conduct research to generate evidence for action in Mauritius. And finally he addressed the question of the *social impacts* of the pandemic in Mauritius, how it could disproportionately affect the vulnerable population, including people living in poverty situations, older persons, persons with disabilities and the youth. For society, how to define and shape the next normal?



**Dr Juwaheer and Dr Nunkoo** specialists in marketing, tourism and hospitality addressed the economic situation of the country and its future if frontiers are reopened or not in the near future. They asked three relevant questions: Opening our Borders, how safe and what's next? What is and likely to be the Economic Impact of Covid-19 in Mauritius and in Africa? If and when we reopen what best suited protocols shall we follow?

The protocols for reopening/ deconfinement in different comparable countries (Fiji, Taiwan, Maldives, Hong kong, Seychelles, Singapore and Reunion) were analysed and compared, in search of the best suitable solutions for the Mauritius situation. What other solutions? First is to promote domestic tourism; research has shown that in half of the economies in the region domestic tourists could replace a considerable portion of international visitors, if fully mobilized; second, in the recovery phase, countries can negotiate so-called *travel bubbles*, i.e. travel corridor with states which are neighbouring and in similar situation of control of the pandemic. The potential of travel bubbles was estimated and their feasibility assessed given the pandemic and pandemic preparedness of countries to be included in the plan.

**“Mr Ramkaloan, CEO of Business Mauritius**, the apex organization of the business community, addressed the public-private sector dialogue and industrial relations in this Covid era. He covered the employment situation, especially on the tourism and allied sectors as a result of COVID -19 and supported the need for new structures and protocols adjusted to the existing situation”.

To obtain data on the Impact of COVID 19 on the Mauritian Economy, a Business Survey to assess the impact of COVID-19 Outbreak in Mauritius (April-September 2020) was conducted by Business Mauritius, with UNDP and Statistics Mauritius. It covered Sales, Exports and expected 6-months outlook, Prices, Cancellation or postponement of orders, Demand and supply and expected 3-months outlook, Employment and Government financial support.

These key areas were identified namely: Strategies to boost exports, Resilience map of economic activities, Changing employment landscape, Business Continuity Planning, Adaptation and Innovation. Furthermore the UN World Tourism Organisation Outlook estimated these effects on tourism: 70% decrease in international inbound tourists (from Jan- Aug 2020), strong Impact on earnings and jobs, while Mauritius was classed in the Top 10 most vulnerable destinations. In Mauritius tourism accounts for 8.1% direct GDP contribution, with approximately 74,000 direct employments.

A number of scenarios for Reopening of our borders in 2021 were examined and discussed. And comparison made with other countries with different scenarios, some of which have failed badly.

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Followed an exchange of views on the various aspects of keeping this country COVID SAFE, namely protocols utilized presently, quarantine measures, eventual vaccine and its availability, the several models of reopening frontiers and deconfinement, the participation of the various shareholders and interest, including the scientific community is arriving at the best strategy for economic recovery while keeping the country Covid safe. With 15 different questions/interventions from participants and brief responses from the speakers.

**Concluding remarks:** On behalf of MAST, Dr Yousuf Maudarbocus, Past President of the Academy, expressed his gratitude to the Academy of Science of South Africa (ASSAf) for its financial support in the organisation of this important event. He stressed the fact that the idea to organise such communication events on the pandemic in the SADC region was initiated by ASSAf with whom MAST has a Collaborative Agreement in the form of a Memorandum of Understanding since more than ten years. He went on to thank the four speakers for their excellent and relevant presentations, the audience for its active participation in the debate, the press for its role in the dissemination of pertinent information to the public and the Mauritius Sugar Industry Research Institute (MSIRI) for providing the venue and logistics.

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**Annex:** Participants to the Forum/Debate numbered 99 and came from the private sector (business and industry), from organizations, including scientific bodies) such Mauritius Academy of Science and Technology itself, the Royal Society of Arts and Science, the MCIA and the MSIRI, the Ministry of Health, IMF, WHO (with apologies), Ministry of Agriculture, OUM and several other Universities, reporters from the press (L 'Express, Le Mauricien, MBCTV, local radios). *(Full list with contact details available)*

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*Michael Atchia, President MAST, 28 November 2020*

## **Could our lifestyle be the principal cause of the COVID19 pandemic?**

The whole world has been affected by this pandemic, something that nobody expected. The disease has upset the lives of millions, and hundreds of thousands of people have lost their lives. Scientists and pharmaceutical companies have still to find a proper cure or vaccine for it. Most of the developed countries have experienced the greatest damage due to the disease. We ask ourselves the question: Why?

We have been influenced by a system of education that stresses on academic excellence, high grades, with the objective of landing a well-paid job around. Where such opportunities are lacking, people invariably fly to 'developed' countries where the prospects and standard of living are higher. Once they get settled there, the desire to return to their homeland and serve the mother- country is very rare. Their parents crave for their company, but finally give up and find refuge in homes where they are looked after. Within developed countries themselves the adults also invariably leave their home and settle as independent families away from the parents. Once or twice a year, on Christmas or Mother's or Father's day they give a call or send a best- wishes card, and feel their duty is over! Are these in line with eternal values of life? Are human relationships so poor?

The crave for economic gain and profit maximisation has marked the development paradigm. In the process a ruthless exploitation of nature and the environment has ensued. Where natural resources are lacking, they are exploited from developing and poor countries under the garb of assisting them to earn more money and raise their standard of living! The scars of colonialism have not healed, and while rich countries are getting richer, poor countries are getting poorer! Eternal values and feelings of love, compassion, solidarity and mutual understanding are fast waning, and individualism and selfish development are increasing! Is such lifestyle warranted?

Our respect for Mother Earth and its natural environment is fast decreasing. Way back in 1992 the United Nations called for a world conference on environment and development in Rio. Many countries participated in the global conference. This has been followed by a series of meetings and conventions that are signed by many countries, like the Paris Agreement of 2015 within the UNFCCC, or United Nations Framework Convention on Climate Change. This agreement is to strengthen the global response to the glaring threat of climate change by keeping the global temperature rise during this very century to well below two degrees Celsius above the pre-industrial levels. Efforts are to be made by all countries to limit the temperature increase even further to 1.5 degrees Celsius. The COP or Conference of Parties who signed the agreement has been meeting annually to alert the countries as to their roles. This role emphasises the need to accelerate planned actions and investments needed for a sustainable low carbon future. The mitigation of greenhouse gas emissions, and the need to put more money in developing alternative sources of energy that are more environmentally friendly have unfortunately not been faithfully achieved. Many countries have for name-sake put up a few wind generators or photovoltaic panels to show that they are trying! They are also still using fossil fuels to generate the energy they need to run their industries. It is now predicted that within a few decades the average global temperature will have exceeded the 2 degrees limit. The pity is that there is no mechanism that forces a country to set a specific emissions target and work towards it. Some developed countries like the United States have even threatened to withdraw from the agreement!

This is the sad story of our development pattern! When we look around, we see the polar caps melting fast because of the increase in global temperature. With this thousands of polar bears are dying, whales, belugas and narwhals are also fighting for survival! Global warming has accelerated the annual extremes of weather, with floods in many countries, cyclones and hurricanes in others, forest fires ravaging thousands of square kilometres, and many natural species disappearing. Thousands of people are dying or being forced to displace themselves for survival. Is this the way we should follow?

We have blindly accepted the concept of GDP or Gross Domestic Product where economic growth is the king. Recently we came up with another measure of development, namely, the GDH or Gross Domestic Happiness. The example of Bhutan has been cited as a typical country where people are happy in their natural environment with only restricted development in terms of infrastructure and urbanization. People in such countries worship Nature and live in harmony with it. They have a rich family and cultural life. On the other hand western life-style craves for GDP growth and the concept of happiness has been grossly misunderstood. Could all these be the cause of the outcome of the Covid19 pandemic? We are aware that with increasing environmental temperature, bacteria and viruses proliferate. However we are still following a pattern of living that is disrespectful of the natural environment! The global situation warrants the need for people to change their lifestyle. Otherwise other pandemics will follow and humanity could be wiped out!

**Professor S. Jugessur**  
sjugessur@gmail.com



On this important subject of **Food Security**, we at the Mauritius Academy have researched and produced this POSITION PAPER for national use. It was widely circulated in Mauritius.

Since it may have been of interest to other academies as well, it was put on-line by IAP as well, for international access.

**Subject: Food Security.**

## **POSITION PAPER**

### **POST COVID-19 CONFINEMENT: ENHANCING FOOD SECURITY PREPAREDNESS AT NATIONAL LEVEL**

#### **Introduction**

The agricultural sector in Mauritius has experienced a number of constraints over the past years whereby it has not been able to significantly increase its domestic food production. It still imports up to 75% of its net food requirements, including essential food commodities such as rice, wheat flour, pulses, onion and garlic. However, agriculture is considered by Government as an important sector and support measures are dispensed because of its contribution to rural employment, food security and imports reduction. Almost 100% of the requirement of the country in fresh vegetables, 80% in potato and about 40% in onion production have been achieved. Nevertheless, Mauritius remains vulnerable to food shortages and rising global food prices.

#### **Current and expected impact of the pandemic on food security**

The current pandemic of COVID-19 is likely to exacerbate our food security challenges. Closed borders, national lockdowns, and the reduction in air and sea traffic have significant adverse effects and would have major impact on supply chains and logistics in the months ahead. International trade disruptions may trigger food price panics and difficulties in obtaining imported foodstuffs.

Imported agricultural inputs such as fertilizers, crop protection products, equipment and ensuring seed availability from different parts of the world ( e.g. Asia and Europe) may be disrupted or become restricted for trade by the producing countries. The market and trade disruptions could drive prices of essential agricultural inputs and raw materials higher, impacting on cost of production on the one hand, and/or cause decline in crop yields on the other hand, due to limited supply of those inputs.

Movement restrictions at national level are causing labour unavailability. Growers could experience their crop production capacity fall due to labour shortages and restrictions in the regrouping of workers because of infection risks. Sickneses could affect the ability to effectively manage fields.

Increased food losses due to the lack of logistics and market disruptions are already a reality, especially for the more perishable products.

Currently, fresh vegetables are in short supply because of access to markets and prices are spiralling. After the end of confinement, we can expect a long lag phase before production attains the normal output.

The resultant of all these challenges are higher food prices associated with lower purchasing power (people being out of work) for households in the months ahead. The weakening of the Mauritian rupee with respect to the US dollar and Euro is already tangible and is a foretaste of the tough economic situation ahead.

A food security crisis could be triggered.

### **Proposed response for the post-confinement period**

Food security is fragile under normal circumstances and must not be ignored in the wake of the unprecedented crisis caused by COVID-19. An urgent, coordinated and integrated national response is needed to protect the population, especially the most vulnerable, and get growers back into production. Actions proposed to address food security are:

A national awareness in promoting and planning the cultivation of fruits and vegetables is essential to supply the local market and to also aim at import substitution. The setting-up of a National Task Force on food production is of relevance for the implementation of strategic measures to attain food security.

A stimulus package is warranted to stabilize the agricultural sector with initiatives such as seed availability, fertilizer allocation programmes and subsidies for agricultural machinery.

An assessment of uncultivated land in various parts of the island should be carried out and growers encouraged to cultivate the plots to step up production. Better usage of the productive land for food production should be the foremost priority. Incentives are necessary for youngsters to embark in agri-business and to feel that in so doing, they are connecting with nature. Back-yard and roof gardens offer the potential for improving household food security by direct access to diverse vegetables, allowing savings on food expenses. Seed distribution should be used as an incentive to trigger interest in cultivation.

Enabling policies and market access are to be provided for entities that have the capacity to rapidly go into large-scale production. Potato and other tuber crops, as well as maize, are the crops of choice that are adapted to the climate of Mauritius as primary and substitution food products. Rice production, the main staple food, needs to be re-envisioned on suitable land.

Regular policing and surveillance of cultivated areas is necessary to discourage theft. Food prices should be monitored and market supervision strengthened for fair access and protection of consumers.

Guidelines are to be issued for the various contexts of the agricultural sector and for consumers to ensure safety and public acceptance - plant, harvest, transport, and sell food without endangering health and safety.

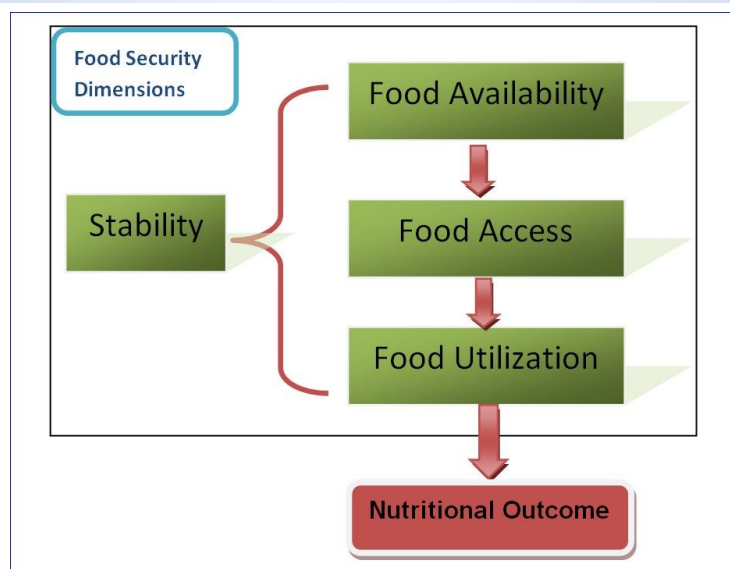
Government is to use its diplomatic channels with friendly countries to ensure the smooth flow of trade, and secure inputs to production and food supply sources. It is appropriate to constitute in advance for the months ahead, the necessary stock of our staple foodstuff to ensure that there is no rupture and measures are taken against illegal stockpiling and profiteering.

### Lesson learnt

A lesson learnt is that Mauritius is vulnerable to such pandemics. It should be less dependent on food import and increase its level of food- self-sufficiency. It is an opportunity to give agriculture a boost by encouraging innovative research and modernizing production tools with enhanced agro-processing capacity in our food security strategy for resilience. Social and infrastructural measures are required to make it more attractive to live in rural areas where most food is produced. Sustainable food and fruit production towards self-sufficiency and import substitution is imperative in the medium and long-term. The added benefit would be a green, healthy and attractive environment. Rodrigues should also be taken on board to encourage cultivation of its traditional crops for its own food requirements and to supply a surplus to Mauritius.

*Prepared by a Committee of the Mauritius Academy of Science and Technology, under the chairmanship of Dr Salem Saumtally*

24 April 2020



**The NASAC Secretariat**  
**P. O. Box 201-00502**  
**Miotoni Lane,**  
**Karen**  
**Nairobi,**  
**Kenya**



**NASAC**  
**NEWS**

## **Seven new science academies for least-developed countries**

**Tonderayi Mukeredzi** 29 September 2020

The Network of African Science Academies (NASAC), a 28-member consortium of science academies in Africa, is collaborating with the United Nations Technology Bank for Least Developed Countries (UNTBLCs) to support the establishment of science academies in seven of the world's least developed countries by the end of this year.

The UN technology bank is a global organisation created in December 2016 to enhance the contribution of science, technology and innovation (STI) for sustainable development in the world's 47 least developed countries.

The science academies, to be established in the *Central African Republic, Democratic Republic of Congo, Chad, Malawi, Lesotho, Angola and Sierra Leone*, will serve as STI advisors to governments and industry sectors, and assist in directing science and technology policies leading to STI-assisted sustainable development achievements.

Jackie Kado, the NASAC executive director, said the UNTBLDC will support the academies as interlocutors for the realisation of sustainable development goals. Concurrently, NASAC will help in the setting up of science academies in countries where none exist, by lending support to the processes that lead towards establishing an academy as a legal instrument that provides credible science-informed advice to their nations.

### **Think Tanks**

"The countries are working on the process of starting academies of science, which are think tanks of top scientists in the country that are identified by their peers, [and] recognised for their excellent scientific work as either members or fellows. The members or fellows of the academy then commit their time and expertise as service to society in order to provide science advice to their government.

"Scientists from all disciplines of science with PhD degrees upwards (natural, social, and pure) are required to provide credible science advice to their nations. For this very reason, the founding fellows/members of the academy are usually experienced, high level and internationally recognised," Kado told *University World News*

A call for scientists in-country and in the Diaspora has also been made to enable interested candidates to register.

According to a 2015 feasibility study for the UN Technology Bank prepared by a panel of experts, most LDCs do not host independent academies of science and their state of STI is poor. Limited resources, including a narrow base of scientific literacy, have contributed to scant generation, diffusion and application of scientific knowledge in the countries.



## News



## African Scientists Directory launched

The searchable online directory aims to support connectivity and collaboration between scientists across Africa.

**With the collaboration of the Mauritius Academy of Science and Technology (MAST). The Directory includes Mauritian scientists who registered in 2020.**

16.06.2020

[\*ISC Regional Office for Africa.\*](#)

[\*A call for Mauritian scientists to register in the Directory.\*](#)

[\*https://africanscientists.africa/\*](https://africanscientists.africa/)

*Contact :*

**Daniel Nyanganyura**

Regional Director: International Science Council  
(ISC) Regional Office For Africa (ROA)  
Email: Daniel.Nyanganyura@council.science

## COUNCIL of MAST, 2020-22

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## MAST Membership

- 1. Honorary Fellows**
- 2. Fellows:** *very senior scientists with many years of experience*
- 3. Members:** *scientists with minimum of ten years post PhD*
- 4. Associate Members:** *Scientists with basic science qualifications and still ready to promote Science and Technology in Mauritius*

**Contact Secretary MAST for further details**

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### About MAST

**The Mauritius Academy of Science and Technology (MAST)** is a non-profit, non-governmental organization created by a group of high-level concerned scientists to bring together some of the best brains in the country and the diaspora, under one association, willing to reflect on some of the burning issues of **Science, Technology and Innovation** and offer independent and studied opinion on them and to promote our development. It strives to promote excellence in all areas concerned by its mission.

The Academy, in collaboration with existing institutions, promotes the popularization and understanding of **Science and Technology** in the population, while encouraging creativity and innovation that can make the service and production sectors competitive on the world market. In partnership with relevant organizations, local and foreign, the Academy enhances cooperation and dissemination of scientific and technological knowledge for a knowledge-based economy. The Academy addresses current national problems where Science and Technology can contribute answers and solutions.

## Picture Gallery

### **FORUM/DEBATE “THE CHALLENGE OF KEEPING MAURITIUS COVID-SAFE”**





## MAURITIUS ACADEMY OF SCIENCE & TECHNOLOGY

MAST has its HQ at the  
UNIVERSITY of  
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For further info. on the  
Academy contact the  
Hon Secretary, Prof. Y.  
Ramma

### Appeal

Willing to join  
MAST and put your  
expertise at the  
service of the  
country?

Send us a short resumé  
on yourself, and tell us  
how you can assist.

### Email us at:

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### Newsletter & Journal

#### Editor:

**Dr. Michael Atchia**

[mklatchia@intnet.mu](mailto:mklatchia@intnet.mu)

We're on the Web!  
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*Members of MAST, meeting at MSIRI, 2020*

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