The enduring mission of the University of the West Indies is to propel the economic, social, political & cultural development of West Indian society through teaching, research, innovation, advisory & community services and intellectual leadership.
– UWI Strategic Plan 2007-2012
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THE RESEARCH IMPERATIVE
Research at the UWI must serve to provide a continuous flow of critical thought, scientific data and insights that can help policymakers to make informed decisions on a wide range of matters with a bearing on national and regional development and the quality of life of our populations.  
– UWI Strategic Plan 2007-2012

There is societal consensus, in Jamaica and many other countries around the world, that education is critical for national development. Yet, often missing in the deliberation about the role of education is the fundamental importance of research within the education product. Central to the operations of the UWI, Mona is its research activity – both pure and applied. Advances in both areas serve to, among other things, infuse our teaching with cutting-edge information critical to a quality education for which we have achieved international recognition. Above and beyond this, our work in applied research seeks to explore and find solutions to the myriad challenges – physical, social, economic, scientific and medical – confronting us as we seek to accelerate the pace of our national development.

The aim of the Research for Development booklet over the years has been to highlight some of the research that this Campus is undertaking to address the multi-faceted nature of our nation’s and region’s challenges.

The current volume highlights some of the recent ground-breaking research work aimed at, among other things, preserving our natural environment, enriching our tourism product, developing the agriculture sector, curbing the rate of violent crime, improving foreign-exchange earnings, employing the cutting-edge ICT needed to enhance institutional productivity, reducing the spread of HIV/AIDS through more effective communication strategies, improving our education system and, of course, continuing to enhance our nation’s health, including the reproductive health of our women, and by so doing, furthering UWI Mona’s long-standing tradition of contributing to Jamaicans having a state of physical well-being that exceeds those of the citizens of most lower-middle-income developing economies.

We hope this year that in presenting the information in reader-friendly language and style we will succeed in showcasing a small sample of the substantial applied research work that is being undertaken on the Campus, as well as communicating to a wider audience, the urgency of the requirement for continued policy and financial support that will enable us to broaden our research capacity to the benefit of Jamaica and the region.
‘TRACING’ IN JAMAICA, AND WHAT IT SAYS ABOUT US

DR. KATHRYN SHIELDS-BRODBER
How often do you ‘cuss off’ someone? And why does it happen so often? Is it true that men don’t quarrel? What about ‘bad wod’? Do women use them as often as men? Do they use the same ones? Do educated people ‘trace off’ each other? What example do our politicians set? Why do we ‘dis’ each other so much?

This researcher, Dr. Kathryn Shields Brodber, made tape recordings of arguments from radio talk shows, family members quarrelling with each other in public places, students and workers on the Mona Campus and politicians campaigning in the 2007 general election in Jamaica. She wanted to put on paper some of the ways in which Jamaicans in different situations start, fuel and end disagreements.

FAMILY DISPUTES
Many family disputes occur in the open – on a sidewalk, at a standpipe, at a shop, in a taxi. This means that a ready-made audience can take part, by taking sides or by being a setter-on to fan the flames. The very same audience can also help to bring an end to the argument.
A female spouse often responds to infidelity by withdrawing speech, domestic favours and sex. She may argue that her spouse should harass his ‘matey’ for them. If he cannot provide money for her and her children, she may embarrass him by questioning his manhood.

A male spouse who is cheating may accuse his partner of not filling his needs. But he may have no other excuse than that ‘a so man stay’ and she will just have to live with it.

Fathers many times have no patience with their son’s mistakes, so they call them ‘idiat’. If this young boy cries in response, his father may ask, “yu a gyal?” Parents often ‘put down’ each other in front of their children, and refer to each other with disrespect.

‘TRACING’ IN THE WIDER SOCIETY
‘Putting down’ also occurs outside of the family unit. A fourteen year-old girl who was arrested for using ‘bad wod’ to the police, phoned a talk show to give her side of the story. She claimed that she had used ‘bad wod’ to the police because they had made extremely hurtful comments about her and her mother. She had responded to disrespect from those in authority.

Politicians in Jamaica also set a bad example. They call each other names, make unkind remarks about each other and are sometimes openly abusive. Recordings from speeches in campaign meetings make it clear that ‘tracing’ is accepted among political rivals.

Talk shows which take place throughout the day and night offer many examples of ‘tracing’. Callers will ‘trace’ a host who disagrees with them or seems to be belittling them. The host may ‘trace’ back, or at least put such callers in their place. If callers keep talking and not listening, a host may go silent, chastise them or cut them off. Others will call in to fuel the argument or chastise the host.

LEARNING LESSONS FROM ‘TRACING’
On many occasions, ‘tracing’ is a means of ending disputes, with members of the audience, invited and uninvited, helping to resolve it. Unfortunately, however, ‘tracing’ may get out of hand and end in physical violence.

The challenge for researchers is to find out how children respond to ‘tracing’ and help them to benefit from ‘tracing’ by using it to resolve rather than fuel conflict. Phase 2 of this research will address these issues.

Dr. Kathryn Shields Brodber, who is Head of the Department of Language, Linguistics & Philosophy, is conducting ethnographic research in discourse practices in Jamaica. She has studied the rise of Creole on radio, and is also investigating linguistic elements of courtroom interaction in Jamaica. kathryn.shieldsbrodber@uwimona.edu.jm
Patwa... Jamaican... Patois... Jamaican Creole (JC). Whatever it may be known as, it is spoken by most, and certainly understood by all Jamaicans. Many think of it as broken English, and often speakers are reprimanded for ‘talking bad’.

CREOLES ARE LANGUAGES
Linguistic research has shown clearly, though, that Creoles (not only JC), are in fact languages in their own right, since they have their own systems at every level. It is common in the Jamaican educational system, for example, to speak of the “home language” of the majority of children entering the school system as being JC.

IT’S NOT AS SIMPLE AS THAT
Linguists recognize that a number of speech varieties exist in Jamaica. There are even those who refer to another language – that used among the children at school.

SO, WHAT DO OUR CHILDREN SPEAK?
Dr. Michele Stewart has sought answers to the question “To what extent has Standard Jamaican English influenced speech in urban communities?” In effect, “What is it that our children speak?” The children studied were in or entering basic school, coming from
communities thought to have speakers of one language only, JC. Partial funding for the research was provided by the Department of Language, Linguistics & Philosophy.

THE CHILDREN ARE NOT STRICTLY CREOLE SPEAKERS
Preliminary findings indicate that the children exhibit a high degree of code-mixing, which is the consistent use of forms characteristic of more creole speech alongside those of Standard Jamaican English (SJE). It appears, then, that they may not speak a distinct language system which can be clearly defined as being the “home language”, distinguishable in their minds and in their speech from SJE.

WHAT NEXT?
Certainly, similar research is needed for other urban, as well as rural communities in Jamaica to determine the extent of the existence of these trends.

WHAT CAN WE DO ABOUT IT?
If the preliminary findings hold, they point to the need for a means for our children to be able to readily distinguish forms which belong to creole, from more standard (SJE) forms. Teaching strategies to achieve this will need to be developed. Standardizing the writing system is also important to help define the boundaries between language systems.

This need for a means by which to allow children to differentiate between the language systems they use impacts, then, on curriculum development for the primary and secondary language classroom and ultimately on language policy.

Dr. Michele Stewart is a Lecturer in the Department of Language, Linguistics & Philosophy at UWI, Mona. Her research interests are syntax, semantics and language education in a creole context. michele.stewart02@uwimona.edu.jm

AN EXAMPLE OF JAMAICA CREOLE (JC) WORDS AND THEIR STANDARD ENGLISH EQUIVALENTS
Absenteeism is a major contributor to low performance levels in primary schools. The Ministry of Education asked Professor Zellynne Jennings-Craig and her team to identify the root causes of absenteeism and develop intervention strategies to address these causes.

GETTING THE INFORMATION

One hundred primary schools with average attendance levels below 85% were selected from across Jamaica for this study. The research team collected information on: (i) the schools e.g. attendance records and from the children, teachers and their parents: (ii) the profile of the community where the low attendance was experienced.

The team also designed training programmes and workshops for the schools and the community-based organizations (CBOs) to mobilize the community towards solving the problem on a continuous and a sustainable basis. Included in
the CBOs are Community Development Officers (CDOs) attached to the Social Development Commission.

The CDOs and the Jamaica 4H Field Officers work along with the research team and the Community Relations Officers and Territorial Education Officers in the Regions in monitoring the interventions in the schools and communities.

The team is also looking at the impact of the schools’ lunch programme on attendance.

CAUSES OF ABSENTEEISM

In analyzing the root causes of absenteeism, the team found that the main causes were socioeconomic factors such as: unemployment, low literacy levels amongst parents and other members of the community, the use of child labor and low value attached to education.

COMMUNITY PROFILES

The communities in which the schools are located are low income and often deep rural with families who are subsistence farmers. On account of bad roads, some of the schools are difficult to access and especially so during bad weather.

The parents are often times young and appear to be unable to exercise control over the children. In many instances, the money given to the parents through government programmes is not used to send the children to school but is spent otherwise. Some areas of use of the funds include expensive hairdos and the purchase of designer clothing.

INTERVENTION STRATEGIES

From the workshops designed to mobilize the communities, several intervention strategies were developed for implementation by the schools working with the CBOs. Most are agriculture-based: rabbit and pig rearing, growing of vegetables and root crops and bee keeping. These activities provide food for the schools’ feeding programmes. Where incidence of praedial larceny is high, the schools have implemented tuck shops, sewing school uniforms, music programmes and integrated the use of computers into the curriculum. The provision of internet and photocopying facilities for members of the more isolated communities will help generate funds to sustain the feeding programmes.

To counter Friday absenteeism, which is alarmingly high in many of these schools, the team recommended enrichment activities such as computer-based literacy programs.

The Ministry of Education has provided seed funds of approximately J$200,000.00 for the purchase of e.g. hardware for building chicken coops, chickens, rabbits, pigs, school garden tools and computers.

REVIEW OF INTERVENTIONS

The monitoring phase includes a review of the strategies and these can be re-designed as necessary.
EXPECTED OUTCOMES

As a result of interventions the team expects: (i) the attendance levels in these schools to improve (to get to 85% or over) and (ii) examples of best practices in interventions to address low attendance to inform future practice.

Professor Zellynne Jennings-Craig is a Professor of Curriculum Development in the School of Education at the UWI, Mona. Her areas of expertise include Curriculum Development/Design; Curriculum Evaluation: Project Evaluation; and Educational Policy, Planning and Analysis. zellynne.jenningscraig@uwimona.edu.jm The other members of the research team are: Dr. Disraeli Hutton, Dr. Lorraine Cook, Dr. Austin Ezenne, Dr. Susan Anderson, Mrs. Jennifer Jones and Dr. Earl Brown.
IMPROVING HIV PREVENTION

The lives and livelihoods of the Caribbean people are seriously threatened by HIV and AIDS. In the whole world only sub-Saharan Africa has a higher proportion of people with HIV. AIDS is the leading cause of death for Caribbean young adults and people below the age of 44 – the most productive age group in any working population.

A HIGH PRICE
The region loses more than 6% of its GDP in direct medical costs and indirect loss of productivity. In addition, HIV infections cause expensive social disruption, drastic shake-ups in relationships and the breakdown of familiar networks. Major psychological costs are added by social stigma, discrimination and isolation.

In the Caribbean, the main reason for HIV transmission is unsafe sexual behaviour. Campaigns to reduce HIV transmission have concentrated on spreading information and educating people – aiming to change dangerous sexual behaviours.

LESS SUCCESSFUL
People working in HIV prevention are beginning to feel frustration: their hard work has been much less successful than was expected. While many more people have been getting
the messages intended to influence behaviour change, the increased knowledge does not seem to lead to sustainable changes in sexual behaviour.

**NEEDED**

The failure of our approach to have the anticipated effects means that there is a serious need for thorough analysis of policies, the review of the models guiding us and a rigorous documentation of prevention successes and failures.

Dr. Marjan de Bruin, whose area of expertise is communication and media, investigates the reasons for the slow progress in changing behaviour by means of specialised communication.

She analysed the Caribbean Regional Strategic Plan and examined more than fifteen national policies to identifying possible blind spots. Most of these plans speak about the complexity of HIV and AIDS but tend to overlook the potential of ‘strategic communication’. Communication is simply equated with the delivery of mass media public service announcements. There is little critical reflection on the more complicated processes such as ‘increasing awareness’ which in most of these policies is simply seen as providing people with information. The assumption is that increasing knowledge will lead to behaviour changes, even when these changes relate to complex experiences such as sexual behaviour. There seems to be little awareness that sexual behaviour is embedded in and affected by a matrix of social factors, not all of which are easily discernible. Her findings have been shared with regional policy makers and small changes in the design of the new Regional Strategic Framework are beginning to occur.

The second part of her research – now in progress – focuses on Caribbean prevention practices where most of the models used as guidelines have been based on very different cultural and economic realities. They are not usually adequate or appropriate for Caribbean emulation. Current practices have often remained undocumented, leaving the ‘local knowledge’ unknown and lessons learned unshared. The results of this part of her research suggest new building blocks for theories and models relevant to the region and better adapted to Caribbean reality.

**Dr. Marjan de Bruin** is a Senior Lecturer and Director of Caribbean Institute of Media and Communication (CARIMAC) at UWI, Mona. She has spearheaded several initiatives to improve Caribbean media coverage of HIV/AIDS and the environment. Her research interests are: gender and journalism; children and the media; communication and HIV and AIDS. marjan.debruin@uwimona.edu.jm
Living from pay cheque to pay cheque? Clueless about the stock market? How we manage our money is perhaps the way we are accustomed to doing it since childhood. One way to learn how to manage our money wisely is to understand savings, investments and the agencies like banks, the stock market and finance houses.

GOOD SAVING HABITS
Young adults can learn how to improve their money management ability in the same way that they sharpen their skills in matters of health, lifestyle, treatment of the environment etc. Recently, researchers at the Caribbean Institute of Media & Communication (CARIMAC) visited twelve schools, both in the urban and rural areas, and taught a programme on financial literacy.

FINANCIAL LITERACY AT WORK
This programme educated the young adults on how to prepare a spending plan and to maintain discipline using it. It gave them the know-how to control debit and credit. The young people were also introduced to the basics of banking and were taught the benefits of saving regularly. A little more challenging to teach was how to overcome bad spending habits. It was clear that these youngsters were far more interested in spending their pocket money on snacks, clothing, and other perishables.

POSITIVE LIFE CHANGES
When the programme started, few youngsters had a bank account. By the time the programme ended, everyone had opened a bank account and had committed to putting some of their pocket money in it on a regular basis.

LEARNING FROM INFORMAL SAVINGS PROGRAMMES
The team of researchers had interactive sessions with the students and learned about the several methods of ‘banking’ that were deeply embedded in their communities. Prominent among them was the partner savings plan.

The students demonstrated to the team that learning about money matters can and does take place through creative methods such as art and drama. The team therefore modified its own teaching style to incorporate art and drama as a tool for effective learning.
SUPPORT FOR FINANCIAL LITERACY
The Caribbean Institute of Media and Communication (CARIMAC) conducted this project with financial assistance from the Commonwealth Secretariat in London and the Jamaica National Building Society.

Teachers can and did play a major role in activities to promote good saving habits among youngsters.

Those schools that had a small business culture e.g. vegetable gardens, animal rearing, metal work, furniture making had a head start in practicing good spending and saving habits.

Mr. Roderick Sanatan, Director of the project, is a Senior Lecturer at the Caribbean Institute of Media and Communication. He was supported by a team of six facilitators who are graduate students at the UWI, Mona. roderick.sanatan@gmail.com
TOWARDS ACROSS-THE-BOARD STANDARDS IN JAMAICAN PRIMARY SCHOOLS
Parents and teachers differed in their understanding of what was expected of the primary curriculum. It meant that teachers even within the same school approached teaching and learning in different ways though they sit common examinations such as the Grade Three Diagnostic Test, Grade Four Literacy Test, and the Grade Six Achievement Test (GSAT).

In 2004, the Government of Jamaica in recognition of the differences in teaching and learning of students on the tests, commissioned a task force to examine primary education. They recommended that the existing curriculum be supported by standards in an effort to ensure that all primary school teachers deliver common content and utilize similar teaching and assessment methods.

Getting to the Meat of the Matter
The researchers went across the length and breadth of Jamaica and spoke with hundreds of teachers, parents, students and other Jamaicans about their use and understanding of the Revised Primary Curriculum (RPC). They also asked about expectations for primary schooling in Jamaica.

Arriving at Standards
After approximately six months of data gathering and analysis, the researchers used the findings to develop National Curriculum Standards – broad goals for education in Jamaica as well as learning and assessment standards to drive the academic progress and achievement of students. These standards were shared with the relevant education officers and their feedback informed the final standards which guide education at all levels in Jamaica. The researchers also recommended that a set of standards be developed to guide teaching at the primary level of schooling.

Setting Guidelines for Content
The National Curriculum Standards, prepared by the researchers, were used to guide the development of general primary standards for all subjects including music, drama, visual art, physical education, religious education and the traditional disciplines. These general primary subject standards were used to re-shape the attainment targets in the RPC to form specific standards for all subjects.

Implications for National Development
As a result of the work produced by these researchers, it is now possible to develop standards-driven curricula across Jamaica. Hereafter, parents and teachers should not differ in their understanding of what is expected of the curriculum in primary schools. All teachers across Jamaica are now able to approach teaching and learning in comparable ways and students who are sitting common examinations such as the Grade Three Diagnostic Test, Grade Four Literacy Test and the Grade Six Achievement Test (GSAT) can be prepared in a similar manner.

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Mrs. Paula Daley-Morris is a PhD candidate studying Information Technology and Curriculum at the UWI, Mona and holds two masters degrees; one in the areas of Teaching, Learning and Curriculum and the other in Instructional Technology. paula.daleymorris@uwimona.edu.jm
Which now of these three thinkest thou was neighbour unto him that fell among the thieves? And he said, He that showed mercy on him. Then said Jesus unto him, Go and do thou likewise.
The drinking of ‘bush teas’ has been a long-standing part of Jamaica’s cultural heritage. Often consumed for ‘medicinal’ purposes, these teas have proven largely harmless, except for one ‘tea’ which caused liver damage particularly in children, prompting the Departments of Paediatrics and Pathology to investigate this unique disease.

STRANGE CASES OF ABDOMINAL SWELLING
In the early years of the University hospital, it was noted that a number of children were admitted to the Paediatric Wards with abdominal swelling due to the accumulation of fluid and the enlargement of the liver and spleen. The disease behaved differently among those affected. Some would get better without medication, others would die from liver failure and the remainder would show persistent damage to the liver leading to cirrhosis of the liver. As the signs pointed to a damaged liver, this organ became the target for investigation by UWI researchers.

UWI DOCTORS DISCOVER A NEW DISEASE
Professors Jeliffe (Paediatrics) and Stuart (Medicine) based on their review of detailed clinical histories, recognized that common to all the patients suffering from this disease was the consumption of ‘bush tea.’ Professor Bras (Pathology), examined the liver biopsies which showed damage to the blood vessels within the liver with obstruction of the outflow of blood. Putting all the findings together, the team was able to explain how the disease was caused. This
was a new disease to medical science and was given the name veno-occlusive disease of the liver.

IDENTIFYING THE CULPRIT
The work was not completed. Simultaneous with these studies, pharmacologic analysis of the tea revealed the presence of a toxic substance in a common plant in Jamaica, *crotalaria fulva* known locally as “white back”.

THE DISEASE ALMOST DISAPPEARS
Following a successful public education campaign, with respect to the dangers of the consumption of this particular bush-tea, there was a dramatic fall in the number of cases admitted to hospital in the 1960’s and by the following decade it was rare to see a single case in the paediatric wards.

INTERNATIONAL RECOGNITION
The recognition of veno-occlusive disease (VOD) of the liver was one of the earliest contributions of the Faculty of Medicine in the 1950’s to the world literature in medicine. It was fundamental in bringing international recognition to the University and established a pattern of research that has been maintained to the present day.

*Professor Barrie Hanchard* contributed this article. He is a member of the academic staff in the Department of Pathology, UWI, Mona and a Fellow of the Royal College of Physicians of Canada and the Royal College of Physicians of Edinburgh. barrie.hanchard@uwimona.edu.jm
Epilepsy is one of the earliest recorded human diseases. In Jamaica and the Caribbean, epilepsy is sometimes viewed very negatively and so persons with this condition are often ashamed and try to hide it, even from family, friends and physicians.

CAUSES OF EPILEPSY
Epilepsy has many causes. In lesser developed countries, epilepsy is most commonly caused by infections of the brain. Fortunately, this is not so in Jamaica, where epilepsy is caused by strokes, brain injuries, high fevers in infancy and least commonly, inherited disorders, just as in developed countries.

HOW COMMON IS EPILEPSY?
In Jamaica it is more common than we think because of the reluctance of many to disclose the condition to others.

UNIVERSITIES COLLABORATE TO HELP PERSONS WITH EPILEPSY
Many people can be helped by medication but unfortunately some people do not benefit from medications. Some of those who do not benefit from medication can have their condition controlled or even cured by surgery! Towards this
end, Dr. Amza Ali has developed a close collaborative relationship with Yale University and the University of Tennessee in the USA where epilepsy surgery is regularly done.

To facilitate the development of epilepsy surgery in Jamaica for the Caribbean, Dr. Ali has assembled a multi-disciplinary team at the University Hospital of the West Indies to carefully evaluate and select those patients who have not responded to medication and who might benefit from surgery. Once identified, patients will receive surgery, assisted by specialists from these American universities who will be involved with the project over the long term.

PAST, PRESENT AND FUTURE

Over the years the Jamaican League Against Epilepsy (JLAE) together with the Jamaican Epilepsy Association (JEA) has worked to address the educational needs of patients and medical staff in understanding the disease and erasing the stigma associated with the condition.

The present initiative to develop a surgery programme for the region brings together many committed individuals who are determined to improve the lives of those who now have no other options.

Jamaica is poised to become one of few countries in this hemisphere with a comprehensive programme of care designed specifically to help persons with epilepsy.

Dr. Amza Ali is an Associate Lecturer in Neurology in the Faculty of Medical Sciences, UWI, Mona; President of the JLAE and leader of the dedicated team conducting this groundbreaking research initiative. amzamd@yahoo.com
MENOPAUSE AFTER HYSTERECTOMY

Many women who have experienced menopause will know only too well the uncomfortable symptoms associated with it. These symptoms are, however, not the only things they should worry about. Menopause is associated with certain life-threatening illnesses such as osteoporosis (brittle bones) and cardiovascular disease (strokes and heart attacks) so all menopausal women should be medically evaluated.

THE CAUSE OF THE PROBLEM
The hormone estrogen plays a key role in protecting women against cardiovascular disease and osteoporosis. Levels of this hormone decrease after menopause whether menopause occurs naturally or after surgery for the removal of the womb and ovaries. Such surgeries are very common in Jamaica.
because of the high incidence of uterine fibroids.

In some societies, hormonal replacement therapy is given to these women but this is not practised in Jamaica.

**WOMEN AT RISK**
To determine if post-menopausal women in Jamaica have a risk of cardiovascular disease and osteoporosis after surgery, a research project was carried out by the Department of Obstetrics and Gynaecology, UWI, Mona.

**UWI LOOKS AT THE PROBLEM**
The project was undertaken between August 2006 to July 2008 and was led by Professor Horace Fletcher. Four hundred post-menopausal women who had surgery to remove their uterus and in some cases ovaries, were compared to a control group of women who had no surgery and who were of similar age.

The researchers first interviewed the women to evaluate cardiovascular risk and then measured their blood pressure, blood glucose and cholesterol. They also measured their waist/hip ratio, height and weight (body mass index) as well as bone density.

**SURPRISE RESULTS**
The findings showed that having a hysterectomy was not a significant risk factor for developing cardiovascular disease. Removal of the ovaries, however, was seen as putting women at greater risk of both cardiovascular disease and osteoporosis.

**INFORMING FUTURE HEALTH CARE**
Information from the study should help doctors develop suitable treatment programmes tailored to suit the health needs of Jamaican women.

This research is being prepared for publication. It was presented at the Caribbean Health Research Conference 2007 and the UWI Alumni Conference, Kingston 2008.

**Professor Horace Fletcher** is Head of the Department of Obstetrics and Gynaecology, UWI, Mona. His research interests include uterine fibroids and the impact of phytoestrogens on hormone dependent diseases such as cardiovascular disease and cancers. The other members of the research team were Dr. Sharmaine Mitchell, Professor Franklyn Bennett, Dr. Donnette Simms-Stewart, Dr. Paul Scott, Dr. Marvin Reid, Dr. Gilian Wharfe and Professor Rainford Wilks.

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PROF. FLETCHER ADVISES A PATIENT ON OSTEOPOROSIS AND ITS LINKS TO MENOPAUSE
HTLV-1 BREAKTHROUGH BY UWI DOCTORS

HTLV-1 is a retrovirus, a virus which has the ability to make copies of itself. It is found in every corner of the globe, but it is more common in Jamaica and in the rest of the Caribbean. It is responsible for a number of diseases that affect several systems of the body. Some of the diseases include a unique leukemia, a chronic paralysis of the lower limbs and a chronic eczema in children.

LARGEST FUNDED RESEARCH PROJECT
Much of the knowledge related to HTLV-1 in Jamaica was the result of a joint collaborative research project with doctors at the National Institutes of Health/National Cancer Institute (NIH/NCI) in Bethesda, Maryland, USA and the Department of Pathology, UWI. During the life of this collaborative project the seed funds were, by far, the largest ever to be acquired by the UWI for research purposes.

TESTING THE POPULATION FOR HTLV-1
The doctors tested everyone who applied for a food handler’s certificate, pregnant patients at ante-natal clinics, blood donors and general clinic patients. From these tests, the doctors found that 3-6% of the Jamaican population were carriers of the virus. Further tests confirmed how the virus was spread from one person to another: sexual intercourse, blood transfusion and from mother to child by breast milk.

FINDINGS TRIGGER GOVERNMENT ACTION
These findings were shared with the Ministry of Health. This information was so vital to the health of the population at large that the administrators there instituted the testing of blood for HTLV-1 in order to prevent spreading by transfusion. They also launched a public education campaign to encourage safe sex practices and to give advice about breast-feeding.

IDENTIFYING NEW DISEASES IN JAMAICA
The doctors then turned their attention to an examination of the diseases caused by this virus. In doing so, they not only found the leukemia in Jamaican patients, hitherto not recorded in the Jamaican population, but they also discovered the association with the chronic paralysis of the lower limbs for which no cause had been previously identified. They also discovered a unique eczema, a completely new disease in Jamaican children infected by the virus.

WORLDWIDE ACCLAIM
The recognition of these three diseases gained for the Faculty of Medical Sciences, UWI international acclaim. The HTLV project concluded in 2006 after 23 years of collaborative research with NIH/NCI. Its immense contribution to the world literature in so many areas remains a landmark achievement in medical research in the Faculty of Medical Sciences.

Professor Barrie Hanchard, Department of Pathology was the Principal Investigator of the project from 1986 until 2006, succeeding the late Professor William Nigel Gibbs, former Dean of the Faculty of Medical Sciences, UWI. barrie.hanchard@uwimona.edu.jm
After ten years of continuous and diligent research, pharmacologist, Professor Manley West and ophthalmologist, Dr. Albert Lockhart developed an eye drop, Canasol, specifically to treat the eye disease, glaucoma. Glaucoma is estimated to affect 3% of the Jamaican population and causes pain, visual disturbances and even blindness.

BREAKTHROUGH IN GLAUCOMA THERAPY
The drug was an important breakthrough, because it is derived from ganja, Cannabis sativa, and was the first eye medication in the Caribbean to be developed at UWI, Mona for this disease. Canasol has an important benefit since it does not induce the negative side effects that are associated with synthetic glaucoma therapies.

EARLY CLUES FROM FOLK MEDICINE
Professor West became interested in studying the ganja plant because he had observed that country folk who used an eye wash made up of ganja in water, always reported to him that it made them see better. The fishermen who drank ganja ‘tea’ made the same claim and further claimed that their vision at night was also better.

Dr. Albert Lockhart noted that his Rastafarian patients who used ganja had a low incidence of glaucoma. More recently, he discovered that the eye drop, Canasol, improves the integrity of the optic nerve, the nerve which causes us to see, thus preventing blindness.

HELP FOR MOTION SICKNESS
As the researchers further investigated other properties of ganja, they discovered its effectiveness against motion sickness. They developed the drug Canavert, which specifically stabilizes the part of the brain that controls motion sickness, thereby inhibiting vomiting and nausea that accompanies this condition. However, the drug has not yet been prepared in commercial quantities.

RELIEF FOR BRONCHIAL ASTHMA
In the early 1990s, Professor West developed the drug, Asmasol, to treat asthma, colds and the flu. The doctors now using this drug, report that they prescribe it for children as well as adults, and that it is effective during both the early and the late phases of the condition. Asmasol is a derivative of ganja and is available in pharmacies throughout the Caribbean.

Professor Manley West is an emeritus Professor of Pharmacology in the Faculty of Medical Sciences, UWI, Mona and the recipient of the Order of Merit from the Government of Jamaica and the Gold Musgrave Medal from the Institute of Jamaica for the development of Canasol. He also received the Order of Merit from the Government of Canada for cardiovascular research. Canasolwest@hotmail.com

Dr. Albert Lockhart received the Order of Merit from the Government of Jamaica and the Gold Musgrave Medal from the Institute of Jamaica for the development of Canasol.
When children begin vomiting for no reason, parents are bound to be distressed. Parents will become even more distressed if the condition worsens and the child begins to have fits or even lose consciousness. This concern is shared by parents worldwide and in many countries, the cause is related to possible viral infections. In Jamaica, however, thanks to UWI researchers, doctors now know to not only consider viruses but to also think about possible ackee poisoning. The so-called ‘vomiting sickness’ caused by ackee poisoning today remains an important but uncommon illness.

**VOMITING SICKNESS**
The uncommonness of this disease was not always the case. Vomiting sickness was very common in Jamaica in the early 1900s and was even more common among poor people. The disease was of such great concern in Britain that in 1913, an expedition of the Liverpool School of Tropical Medicine was undertaken primarily to determine whether there was a link with yellow fever.

**UWI FINDS THE CAUSE**
Although it was thought to be caused by many factors including worm infestation,
poisoning and stomach inflammation, researchers at the UWI in the early 1950s were able to definitely show that eating the unripe ackee was the cause of vomiting sickness.

The significant reduction in the occurrence of this disease and explanation for the cause is one of the major triumphs of the researchers of the University College of the West Indies, now the UWI.

The story began in 1915 when the government bacteriologist, H.H. Scott, after analyzing 32 cases of vomiting sickness, suggested that eating the unripe ackee was the cause. His suggestion was controversial and therefore his proposal was not widely accepted.

It finally took Professors Hill and Hassall and their colleagues from the UCWI in 1954 to make the link. They were able to show that a special compound that came out in the ‘pot water’ was poisonous and caused the vomiting sickness by severely dropping the blood sugar. Babies were more severely affected because they were often given the pot water to drink. The pot water should be thrown away and not be used in cooking.

STAMPING OUT THE DISEASE

The fruit continues to form a major staple in the Jamaican diet, thankfully without incident, now that we understand when and how to use it. Children between 2-10 years are more severely affected as their brain’s requirement for glucose is more absolute and also, as was stated by Scott, very often the children are given the most toxic part of the meal, the ‘pot water’, to drink as a soup.

The success of this story lies in the virtual absence of ‘vomiting sickness’ in modern-day medicine in Jamaica and the confidence with which one can still enjoy a meal of ackee. This achievement is a credit to the work of doctors in the Faculty of Medical Sciences at the UWI Mona.

Dr. Nadia Williams, the contributor of this article, is a Senior Lecturer in the Department of Pathology, UWI, Mona and a Consultant Pathologist at the University Hospital of the West Indies. She is also a Matsumae International Foundation Fellow and a Fellow of the American College of Gastroenterologists. nadia.williams@uwimona.edu.jm
Faculty of Pure & Applied Sciences
Jamaica’s mangrove areas are perceived by many to be wastelands and a nuisance with many mosquito-infested swamps. This perception has led to the felling of trees, filling in of lagoons to make dry land and removal of large areas of forest.

Mangroves – notwithstanding this treatment by Jamaicans – are some of the most productive areas in Jamaica and throughout the world. Their widespread rooting system anchors and holds the soil in place, thereby preventing coastal erosion and providing a home and food for many sea creatures. This home is really a nursery for many fish, including shrimp and lobster, eaten by Jamaicans.

LOSS OF MANGROVE
When Jamaicans remove large areas of the mangrove, it results in reduced numbers of fish available for food and loss of Jamaican sea creatures found...
nowhere else in the world. Another major problem is the loss of protection from coastal erosion caused by hurricanes.

HALTING THE DESTRUCTION
Dr. Mona Webber and her team from the Port Royal Marine Laboratory, concerned about the effects of the destruction, embarked on a public education campaign to alert the users of the mangrove to the value of the mangrove and the need to conserve it by using it wisely.

CHANGING ATTITUDES
Through a project funded by the Environmental Foundation of Jamaica, the researchers were able to produce illustrated pamphlets informing people of the plants and animals found in the mangroves.

At the Port Royal Lab, the researchers have set up tanks showing the plants and animals which live in the mangroves and how they inter-relate. Schools, interest groups and the public at large are invited to see how the animals live and what they need to survive.

In addition, the team conducts educational boat tours into the Port Royal mangroves.

A specially prepared CD-ROM with information about the value and wise use of the mangroves has also been produced and is being distributed to schools throughout Jamaica.

NEW DISCOVERY TO SCIENCE
In the process of caring for the mangrove, the team discovered a new species of sponge, a unique mangrove animal which they named Haliclona portroyalensis. This discovery is valuable to science and will be disseminated to marine scientists across the world.

Dr. Mona Webber is a Senior Lecturer in the Department of Life Sciences and an Associate Dean in the Faculty of Pure and Applied Sciences, UWI, Mona. As a marine ecologist, she has been conducting research and teaching on Jamaican plants and animals for several years.

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CONSERVING JAMAICA’S NATURAL FORESTS AND UNIQUE PLANTS & ANIMALS
Jamaica is an internationally recognized ‘biodiversity hotspot’ because many of the island’s species are endemic – meaning they are found nowhere else in the world. In fact, Jamaica is ranked 5th in the world in terms of endemic plants, and boasts a very impressive list of spectacular animal species that are also found nowhere else on the planet.

Jamaica’s natural heritage under severe threat
Unfortunately, Jamaica’s natural habitats, and by extension, the plants and animals that inhabit them, are under severe threat. Beginning with massive deforestation dating back to early colonial times, the island has now lost over 90% of its natural forests – home for most of the island’s endemic species. And the destruction continues. Conversion of remaining forests and coastal habitats to agriculture, industry, and tourism is steadily chipping away at what little habitat is still left. The island’s unique animals are also under attack. Several bird, reptile, and amphibian species have already gone extinct in recent times; many others are currently threatened with extinction.

Saving our unique plants and animals
Saving the island’s rich collection of unique plant and animal species, and the natural habitats that support them, is a critical undertaking. Future generations should be left with a healthy environment that contains all the ingredients for proper ecosystem functioning. Indeed, we owe it to our children to leave them with all the species that still exist, and must leave them with a Jamaica that can still provide the ecosystem services that all life relies on – for example, clean air and clean water.

Assessment and prediction
The Department of Life Sciences has been conducting research aimed at assessing the current status of the Cockpit Country and Lower Black River Morass. Both areas have suffered greatly at the hands of man. By using old aerial photographs and satellite images, researchers can examine how the habitat has changed over time. When combined with biodiversity and socioeconomic information, such analyses can allow researchers to predict the ecological outcomes of future land use strategies. For example, it should be possible to predict the extent of biodiversity loss that would result from bauxite mining in the Cockpit Country. Such
information should be of great value when weighing the costs and benefits of various development projects, and will be made available to policy makers.

REHABILITATION
Of course, there is also the need to rehabilitate habitats that have been severely degraded. In the Black River area, the non-native plant (Alpina allughas), a member of the ginger family, has completely altered some areas, and has led to the disappearance of unique patches of swamp habitat. Researchers plan to conduct studies aimed at determining whether this damaging plant can be controlled. Studies focused on the growth rates of various tree species will help with efforts to reforest degraded portions of both the Black River swamp forest and the Cockpit Country. Only through research is it possible to select the very best species of trees to replant the island’s damaged habitats.

The researchers, Dr. Kurt McLaren and Dr. Byron Wilson are members of the Department of Life Sciences, UWI, Mona. Their work is being funded by the John D. and Catherine T. MacArthur Foundation, USA. kurt.mclaren@uwimona.edu.jm and byron.wilson@uwimona.edu.jm
The Hazards of Asbestos

Asbestos kills approximately 100,000 people worldwide and many more suffer from asbestos-related illnesses, according to the International Labour Organization (ILO). Asbestos makes contact with people through: inhalation of very small fibers released during the manufacture of asbestos products; contact with materials that have deteriorated or carelessly disposed of in the environment and disturbed natural sources. For a very long time, asbestos has been used in close to 4000 products, including thermal insulation, brake shoe padding, roofing tiles and pipes carrying water and sewage.

Types of Asbestos
Asbestos is a family of fibrous substances which fall into two major categories. One type is white and curly and the other type is of either blue or brown straight fibers, the latter type being extremely dangerous to health.

Asbestos and Your Health
However, not all contact with asbestos leads to health problems. It is inhalation of very small asbestos fibers which when lodged
deep in the lungs or the external lining of the stomach leads to the hardening of tissue or cancer. Because it is the small fibers that do the damage to the body, it is important to prevent the asbestos from breaking down into small particles and to keep airborne dust bearing asbestos at a minimum.

PREVENTING THE BREAKDOWN OF ASBESTOS
The simplest method is to keep the asbestos wet by applying soapy water on it. Where dust is unavoidable, special filters should be used to clean the air.

THE BAN ON ASBESTOS
All over the world, governments have placed a ban on asbestos and its products, especially the blue or brown type.

CURBING THE ASBESTOS THREATS IN JAMAICA
UWI researchers, Professor Ishenkumba Kahwa and Dr. Howard Reid spent several years studying asbestos use, handling and disposal practices in Jamaica. They launched several public education campaigns; set up laboratory facilities to detect the presence of asbestos in the air and industrial and household products and installations; removed asbestos and asbestos-containing materials from homes, schools, workplaces, churches etc.; advocated vigorously for safe and proper packaging and disposal of asbestos in general and assisted National Environment and Planning Agency in preparing a national policy for managing asbestos pollution.

As a result of this effective advocacy for the safe management of asbestos in Jamaica, several entrepreneurs have established successful businesses out of the removal and disposal of asbestos as well as the sale of safety gear.

Jamaica is a much safer place thanks to the work of these researchers who have now extended their work to management of hazardous materials in general.

Prof. Ishenkumba Kahwa, Dean of the Faculty of Pure and Applied Sciences, has devoted most of his life to scientific research and education and their application to the improvement of human living conditions. He has supervised several doctoral students who have distinguished themselves in the sciences in the western hemisphere. ishenkumba.kahwa@uwimona.edu.jm
The Cockpit Country, an area of forested hills which covers parts of St. James, Trelawny and St. Elizabeth, is highly treasured by scientists because of the vast numbers of plants and animals found only in that region. These plants and animals also provide food and livelihood to many in the surrounding communities.

MEDICINAL PLANTS
The forests contain medicinal plants which are used in home remedies and as key ingredients in wines, ‘root’ drinks and tonics.

Among these forest plants are chainy root, sarsaparilla, medina and ‘strong back’.

DAMAGE TO THE COCKPIT COUNTRY
Over the years, however, the Cockpit Country has been heavily harvested for various non-timber products such as roots, bark, vines, leaves and fruit. Medicinal plants are now...
being reported to be in short supply or available only deep in the interior.

HELP ON THE WAY
With funding from the United States Agency for International Development (USAID) in collaboration with government and local committees, a project led by Dr. Sylvia Mitchell of the UWI, Mona was launched for the micropropagation of selected non-timber forest medicinal plants.

EDUCATING THE LOCAL COMMUNITY
The researchers, realizing that there is an urgent need to curtail the threat to non-timber forest products, have begun educating the residents about how they can earn a living in a manner that does not degrade the forests. An important component of the education process is showing the residents how to incorporate new technology into their traditional livelihood practices.

MULTIPLICATION OF PLANTLETS
The process starts in the laboratory where the hard-to-find forest plants are multiplied by a process called micropropagation. The rooted plantlets are then taken to three hardening facilities established in the Cockpit country at Quick Step, Troy and Bunker’s Hill. At these demonstration sites, the plantlets are removed from their glass vessels and after a hardening phase, when they are strong enough, they are planted in the field plots.

BENEFITS TO THE COMMUNITY
The Cockpit Country’s endangered species, particularly these valuable medicinal plants, are now being preserved from over harvesting. In addition, large numbers of plantlets of economically important crops such as wicker, hot peppers, peppermint, ginger and pineapples are

EXAMPLES OF JAMAICAN ROOTS DRINKS
also distributed free of cost to participating community members on the basis that they will collect growth data for the project.

The UWI has created a new opportunity for every rural person in Jamaica to farm and earn a living by using these disease-free plantlets to produce a more bountiful harvest. Farmer John no longer has to trek far into the forest, destroying it in the process, to make a living.

Dr. Sylvia Mitchell is a Lecturer and Head of the Medicinal Plant Research Group at the Biotechnology Centre, Faculty of Pure and Applied Sciences. sylvia.mitchell@uwimona.edu.jm
CARIBBEAN CLIMATE CHANGE: ITS EFFECT ON OUR LIVES
Tourism, agriculture, energy use, water, and health are important to all of us in the Caribbean. They influence our ability to earn money, feed ourselves and enjoy a reasonable standard of living. These areas are affected by several factors, one of which is climate.

Because climate has the ability to affect the way we live, a team of scientists called the Climate Studies Group, Mona, is examining how Caribbean climate is changing and the impact of climate on these important areas of our lives. Funded by CARICOM Climate Change Centre and other international agencies, the scientists already have a better understanding of what makes one year wet and cool and another hot and dry.

**HOW CARIBBEAN CLIMATE IS CHANGING**
In the past, Jamaica and the Caribbean, both in the daytime and at night, enjoyed cooler temperatures. Even when the days were hot, we could look forward to cooler nights.

Now, the scientists have observed that the days are hot and the nights are also hot, i.e. no nighttime relief.

Also changing are the intensity and duration of rainfall across the island and the Caribbean. Today, we experience far greater extremes in rainfall events, e.g. floods and droughts.

**HOW THE CLIMATE WILL CHANGE**
The team is also studying how global warming, the rise in temperature generally experienced around the world, will change the climate of the Caribbean region and hence our lifestyle.

Global warming may cause up to a 4°C rise in temperature across the Caribbean region. This rise could result in drier conditions particularly during the early part of the rainy season.

Global warming may also cause more intense hurricanes to pass through the Caribbean.

**IMPACT OF CLIMATE CHANGE**
The scientists have collected data which suggest increased incidence of dengue fever in the Caribbean and a globally warmed world.
They also expect changes in the amount of water flowing in our rivers in Jamaica.

PLANNING WITH MORE CERTAINTY
Now that we can project with more certainty how the climate may change, governments, businesses, farmers, hospitals, schools and the man in the street can be better prepared for the consequences of climate change.

As the information reaches to everybody, we all can play our part in minimizing or taking advantage of the effects of climate change.

Dr. Michael Taylor is a Senior Lecturer in the Department of Physics, UWI, Mona and currently heads the Climate Studies Group, Mona. He is an expert in Caribbean Climate Variability and Change which he has been researching for several years. Other members of the team include Dr. Tannecia Stephenson and Professor Anthony Chen, member of the Intergovernmental Panel on Climate Change which was jointly awarded the Nobel Peace Prize in 2007. michael.taylor@uwimona.edu.jm
Our reefs are dying! Scientists predict that if we do not stop the destruction, by the year 2050 there will be no living reefs left in the Caribbean. Why is this devastating news?

**REEFS ARE IMPORTANT**
Reefs provide sand for our beaches; protect the coast from erosion; reduce the impact of storms on the coast; provide a habitat for the fish we eat; and generate one in six jobs in the Caribbean in the tourism and fishing industries.

**WHAT’S CAUSING THE REEFS TO DIE?**
Our reefs die from local causes such as: over fishing, untreated sewage discharged into the sea, and soil being washed into the sea from poor farming practices. World-wide problems such as global warming; and the increased number and intensity of hurricanes hitting our shores also contribute.

The reefs in Jamaica are so badly damaged that they will not recover on their own. They must get help.

**REEFS GROW SLOWLY**
Reefs are animals and not rocks. They all grow very slowly with some types growing as little as one centimetre per year. To grow they need clean, clear sea water at temperatures between 25°C - 29°C. The corals could die if the temperature is raised even one degree above this maximum or if there is a decrease in the quantity of salt in the water.

In Jamaica where we once had lush reefs with 80% living coral, today those reefs average less than 20% living coral. Scientists have recorded as low as 5% coral abundance on some reefs.

**GROWING CORAL TO INCREASE THE CORAL POPULATION**
The Center for Marine Sciences UWI is conducting research in association with scientists in Israel to grow corals on
a floating mid-water nursery in Discovery Bay. The scientists, with funding from the United States Agency for International Development, are testing several types of coral to see which types grow best, fastest and under what conditions.

When the scientists have determined which types are most hardy, they plan to replant those on the reefs to improve the coral abundance.

THE BENEFITS OF INCREASING THE AMOUNT OF CORAL ON OUR REEFS
If our reefs recover, then our shoreline will receive greater protection from storms and beach erosion will be reduced. We will also have lovelier beaches for Jamaicans and our visitors to enjoy and more fish to eat.

Dr. Judith Mendes, the Principal Investigator, is a Lecturer in the Department of Life Sciences at UWI, Mona and Director of the Bellairs Research Institute of McGill University in Barbados. judith.mendes@uwimona.edu.jm
The island nations of the Caribbean are among the most vulnerable countries to global environmental change, e.g., sea level rise and climate change. Jamaica, along with Cuba, Haiti, the Dominican Republic, and Puerto Rico, have set out to develop a computer model that can be used to describe and predict the impacts of development and climate change on coastal resources such as coral reefs, sea grass, beaches, and coastal forests.

**Funding**

Located at Florida International University, the project is largely funded by the Inter-American Institute for Global Change Research (IAI) in collaboration with several global environmental interests.

**Getting the Model Right**

Scientists at the UWI, Mona are busy collecting information on the seasonal and yearly water flow, sediment loads (e.g., levels of earth washed into the river) and amount of pollution released into the sea. With the inputs from The Nature Conservancy (TNC) and the National Environment and Planning Agency (NEPA), the scientists, using their models, will be able to predict with a great degree of accuracy the likely effects of proposed developments on land and coastal resources.

As climate change occurs, it gets difficult to predict its impact on the environment. So things that the scientists know will happen as a result of climate change are also being fed into the model. Some of the things they include are rainfall: where and how much; by how much the sea level will increase; and how the increase in sea level will affect coastal properties.

The information currently being fed into the model is not limited to the information being collected but will be supported by information from previous investigations conducted all over the island.

All the information gathered from these sources will be used to test the basic model located at FIU. The modified Jamaican model will then be used by UWI scientists to predict what will happen in the Jamaican setting.

**Community Support**

With the help of local stakeholders (farmers, government, and private owners) deliberate modifications in land use will be conducted while information is being gathered on any changes in water quality,
sediment load and pollutants.

VALUE OF THE MODEL
The use of a credible model will therefore improve our understanding of what happens to our coasts and the potential impacts from development as well as climate changes.

IMPACTING GOVERNMENTS OF THE REGION
We should at the end of this investigation understand and predict the impact of any changes made on land to the health and survival of our coastal resources. It means that very soon, scientists in these countries will be able to inform governments about the consequences of converting e.g. agricultural areas to housing developments or changing land use from sugar cane to citrus.

Mr. Orville Grey, a Ph.D. student in the Department of Life Sciences is conducting the research under the supervision of Dr. Dale Webber, Principal Investigator and Director of the Centre for Marine Sciences, UWI Mona.
dale.webber@uwimona.edu.jm
Jamaica is well known for its many medicinal plants which are widely used in a number of folk remedies, teas and ‘root’ wines. One of these plant medicinal plants is Bitterwood or *Picrosma excelsa*. It is a native forest tree which can grow up to a hundred feet tall. The bark and wood when chipped and dried are used in herbal medicines and in tonics, to stimulate appetite, aid digestion, treat anorexia nervosa and tone up a run-down system.

**BITTERWOOD’S MANY USES**

The ingredients are also used in significant quantities in alcoholic beverages, particularly in aperitifs such as Campari™, soft drinks, candies, baked goods, marmalades, liqueurs and can be substituted for hops in brewing beer and ale.

Bitterwood is also valuable in the pesticide industry against flies, spider mites and aphids but reportedly non-toxic against a number of beneficial insects such as ladybird beetles and bees. It is also utilized in cattle feed as an ingredient to increase weight gain.

**THE MAIN GLOBAL SUPPLIER OF BITTERWOOD**

Jamaica, the main global supplier, exports an average of 100 tons of wood chips annually at a value of approximately US$300,000.00. A very conservative estimate of the commercial value
of the extracted active ingredients from the wood chips is between US$6m-8m.

To export a value-added product instead of a raw material to be processed overseas, Dr. Yee and Professor Jacobs have designed a commercial process to convert the raw material into a finished product ready to be used.

The process developed by Yee & Jacobs incorporates a system of quality control which satisfies the demands of the overseas processor. The chemicals used by the researchers are all generally regarded as safe (GRAS) and this is necessary because the main use of the finished products is for human and animal consumption.

A PROFITABLE BUSINESS PROSPECT
Dr. Yee and Professor Jacobs have applied and received Jamaican and US patents to prevent the unauthorized use of the process by others. A European patent has been applied for and is pending.
The ultimate goal is the establishment of a local extraction plant which will allow all the economic benefits to remain in Jamaica. These include: local employment especially rural employment, increased foreign exchange earnings and agro-industrial developments.

**Dr. Trevor Yee** is the Executive Director of the Natural Products Institute, UWI, Mona. He was involved in the preparation of 32 product standards for cosmetics and household chemicals at the Bureau of Standards, Jamaica.

trevor.yee@uwimona.edu.jm

**Professor Helen Jacobs** is a Professor in the Department of Chemistry, UWI, Mona. Her work involves the extraction, isolation, analysis and application of spectroscopic techniques on endemic Jamaican plants.

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HELPING JAMAICANS COPE WITH DIABETES
Diabetes, called ‘sugar’ by many Jamaicans, is one of the most common diseases affecting people across the world. Five to ten percent of the adult population in westernized countries has the disease and in Jamaica over four hundred thousand persons in a population of under three million are affected. In Barbados the prevalence of type 2 diabetes is almost 17% and in Cuba it has increased from 8.4 - 24.8% between 1971 and 1998.

**IMPACT ON THE ECONOMY**
This high prevalence of the disease results in tremendous economic stress on the health care system in the Caribbean, causes loss of labour hours and disrupts family life.

**MANAGING THE DISEASE**
Managing the disease is critical to all nations. Studies with large numbers of individuals with type 2 diabetes have indicated that those who maintain their blood sugar under tight control best avoid the complications from this disease. Dietary management and exercise are crucial for control of type 2 diabetes cases. The suggestion is that the real problem may be associated with the consumption of complex carbohydrates such as is found in rice, potatoes, corn and carrots.

**CONTROLLING SUGAR IN THE BLOOD**
Some foods when consumed release sugar slower than others. Those foods are better for the diabetic and are classified as having a low glycemic index (GI). Examples of these foods are: sweet potatoes, kidneys beans (red peas), bananas, cabbage, grapefruit and raw carrots. These foods of low GI are referred to ‘good carbs.’ Foods that release sugar rapidly into the bloodstream, high GI foods, or ‘bad carbs’ such as French fries, donuts and white rice should be avoided by diabetics. In order to control the sugar in the blood stream, the diabetic has to pay attention to the GI of the foods consumed.

**UWI MEASURES THE GI IN LOCAL FOODS**
Dietary management can minimize the onset of complications (retinopathy, nephropathy, neuropathy etc) arising from type 2 diabetes, hence the need for more precise control of spikes in blood glucose levels in persons affected by this disease cannot be over-emphasized.

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**GLYCEMIC INDEX DIET SHEET**

<table>
<thead>
<tr>
<th>FOOD SAMPLES</th>
<th>GI VALUES OF COMMONLY EATEN FOODS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BOILED</td>
</tr>
<tr>
<td>ROUND LEAF YELLOW YAM</td>
<td>INTERMEDIATE GI</td>
</tr>
<tr>
<td>NEGRO YAM</td>
<td>HIGH GI</td>
</tr>
<tr>
<td>LUCEA YAM</td>
<td>HIGH GI</td>
</tr>
<tr>
<td>WHITE YAM</td>
<td>HIGH GI</td>
</tr>
<tr>
<td>SWEET YAM</td>
<td>HIGH GI</td>
</tr>
<tr>
<td>SWEET POTATO</td>
<td>LOW GI</td>
</tr>
<tr>
<td>IRISH POTATO</td>
<td>INTERMEDIATE GI</td>
</tr>
<tr>
<td>DASHEEN</td>
<td>HIGH GI</td>
</tr>
<tr>
<td>COCO YAM</td>
<td>INTERMEDIATE GI</td>
</tr>
<tr>
<td>PUMPKIN</td>
<td>INTERMEDIATE GI</td>
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<tr>
<td>BREADFRUIT</td>
<td>LOW GI</td>
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<tr>
<td>GREEN BANANA</td>
<td>LOW GI</td>
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<tr>
<td>GREEN PLANTAIN</td>
<td>LOW GI</td>
</tr>
<tr>
<td>RIPE PLANTAIN</td>
<td>INTERMEDIATE GI</td>
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</tbody>
</table>

**FOOD SAMPLES**

<table>
<thead>
<tr>
<th>Item</th>
<th>GI VALUE</th>
</tr>
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<tbody>
<tr>
<td>CHO-CHO</td>
<td>LOW GI</td>
</tr>
<tr>
<td>MOON SHINE YAM</td>
<td>LOW GI</td>
</tr>
<tr>
<td>PUM PUM YAM</td>
<td>INTERMEDIATE GI</td>
</tr>
<tr>
<td>ST VINCENT</td>
<td>HIGH GI</td>
</tr>
<tr>
<td>YAMPIE</td>
<td>INTERMEDIATE GI</td>
</tr>
<tr>
<td>KIDNEY BEAN (RED PEAS)</td>
<td>LOW GI</td>
</tr>
<tr>
<td>GUNGO PEAS</td>
<td>LOW GI</td>
</tr>
<tr>
<td>CALALOO</td>
<td>LOW GI</td>
</tr>
<tr>
<td>OTAHEITE APPLE</td>
<td>LOW GI</td>
</tr>
<tr>
<td>LETTUCE</td>
<td>LOW GI</td>
</tr>
<tr>
<td>CABBAGE</td>
<td>LOW GI</td>
</tr>
<tr>
<td>CABBAGE</td>
<td>LOW GI</td>
</tr>
</tbody>
</table>

**GI VALUES OF COMMONLY EATEN FOODS**

- BOILED / COOKED
- UNCOOKED / FRESH
Researchers at UWI, Mona have made significant advances in helping Jamaicans with diabetes identify local foods with low GI.

OTHER SUCCESSES
The team has: screened crops with low GI for bioactive compounds for the health industry and from these findings have created the GI database; conducted basic studies necessary for product development of low GI foods; and developed low GI diets from indigenous Jamaican crops. Currently underway is a study of the effects of low GI foods at the level of the organs and tissues in type 2 diabetic rats.

BENEFITS TO ALL JAMAICANS
The GI database prepared by the researchers of some commonly eaten Jamaican foods will facilitate nutritional management in diabetes and other health related conditions. Adherence to these diets will significantly alleviate the major dietary challenges faced by diabetics and will enhance their quality of life. The GI database is also useful for management of lifestyle diseases in general.

Research data will help health care professionals, health-conscious individuals and athletes in diet selection geared towards their energy-level needs.

The members of the research team led by Professor Helen Asemota, are Dr. Andrew Wheatley, Dr. Perceval Bahado-Singh, Dr. Michael Boyne and Professor Errol Morrison. helen.asemota@uwimona.edu.jm and andrew.wheatley@uwimona.edu.jm
HOW TO STEM THE TIDE OF FAILURE IN JAMAICAN SCHOOL CHILDREN

The reason some students cannot learn is not that they are dull but that they learn differently and may benefit more from non-traditional methods of teaching. There is another group of students who have the capacity to learn using traditional methods but are hampered by academic, emotional and behavioural problems.

The researcher, concerned about the increasing underachievement in school children, their behavioural problems and unidentified learning challenges, decided to go beyond describing the problems and their causes and instead embarked on finding solutions.

The children to receive help were chosen from the Ministry of Education’s Student Empowerment Program. These children had the academic, emotional and behavioural problems the researcher wanted to address.
She then set out to collect information on each child including: age, gender, school grades, GSAT scores and their behaviour and emotional functioning in a variety of situations.

STRUCTURE OF THE INTERVENTION
Funded in part by the Grace Kennedy Foundation and with support from the Ministry of Education Student Empowerment Programme and the Department of Educational Studies, UWI, the researcher was able to utilize Neuro-Linguistic Programming (NLP) and Time Empowerment Techniques (TM) as the main form of intervention. NLP is used by all human beings to encode, transfer, guide and change behaviour. TM allows persons to release negative emotions rapidly and permanently.

STUDENTS
She divided the children into two groups. One group, the experimental group, received techniques for releasing anger, sadness, fear, guilt, shame; changing learning, studying and test-taking strategies and setting goals for the future. The other group, the control group, was placed on a waiting list to receive the intervention later.

PARENTS
The parents of students in the experimental group received the same treatments as did their children, except that they received parenting support instead of the learning, studying and test-taking strategies.

TEACHERS
The teachers participated in workshops for the release of negative emotions and for the modification of teaching and classroom management strategies.

EXPECTED OUTCOMES
The children should feel better about themselves, display more socially-appropriate behaviour and be better equipped to pursue their academic and vocational goals.

Dr. Rosemarie Johnson is a Lecturer and Clinical Psychologist in the Department of Sociology, Psychology & Social Work. She teaches Psychological Assessment at the graduate level and Behaviour Management at the undergraduate level. drrose.johnson@gmail.com
Over the last twenty years, CARICOM has experienced little growth in its exports of goods. Many of the goods the region exports are not in high demand in world markets. Although CARICOM receives special treatment in that the import duties on their exports are lower than the duties imposed on some of their competitors, CARICOM continues to export mostly goods for which the demand is stagnant.

Concerned about the slow growth of goods exports and the resulting increase in reliance on tourism earnings, Dr. Freckleton, the researcher, approached the UWI for funding to examine solutions to this dilemma. Armed with a research fellowship, she proceeded to examine the competitiveness of CARICOM exports in North American and European markets.

**FINDINGS**
The research showed that approximately half of the region’s exports of goods were experiencing limited growth in demand. The researcher is of the view that the region needs to develop exports that are experiencing increasing demand on world markets.
markets. Development of new exports will allow the region to take advantage of new opportunities opening up in foreign markets e.g. the Economic Partnership Agreement (EPA) with Europe. This strategy will enable the region to expand its export earnings.

In order to determine the factors limiting the growth of non-traditional exports, the researcher conducted a survey of Jamaican exporters. The survey found that limited access to long-term financing and a tendency to utilize traditional methods are serious obstacles. Additionally, the exporters themselves identified the high cost of borrowing and electricity as major factors restricting their ability to expand exports.

**Changing the Way We Do Business**

The findings of this study will be valuable to policy makers involved in developing export strategies. If the recommendation to develop new exports is implemented it will create new employment opportunities for farmers and professionals. Small businesses, manufacturers and other producers will also benefit.

Finally, widening the range of exports will promote growth and development and improve the stability of the economy.

**Dr. Marie Freckleton** is a Senior Lecturer in the Department of Economics, UWI, Mona and an Associate Fellow at the UWI Graduate Institute of International Relations, UWI, St. Augustine. marie.freckleton@uwimona.edu.jm
The Government of Jamaica has decided to use casino gambling as a means of attracting more tourists to the island and earning additional income for the country. Although aspects of casino gambling are here, no one knows for certain how much money can be earned from large casinos and what the effects are likely to be on the country. This is the first academic study in Jamaica to examine the positive and negative effects of gambling on the society.

In developed countries, governments and universities spend considerable sums of
ROULETTE WHEELS MAY SOON JOIN THE OTHER FORMS OF LEGAL GAMING IN JAMAICA
money on studying the effects of casino gambling in order to help its citizens who have been harmed by the activity.

**POSITIVE EFFECTS**
Casino gambling has several positive effects including being a source of recreation, employment, tax revenue, new businesses and higher incomes. The income from casino gambling is often used for construction of roads and new buildings.

**NEGATIVE EFFECTS**
Studies have shown that casino gambling often leads to an increase in crime and violence and a change in traditional values away from hard work to ‘easy money’, i.e. riskier means of earning a livelihood.

Other negative effects are the destruction of local businesses, loss of productivity and an increase in addictive gambling.

**RECOMMENDATIONS FOR THE GOVERNMENT**
The chief recommendation, coming from this study, is that the Jamaican government pursue a type of casino gambling similar to what exists in The Bahamas. In other words, only tourists should be permitted to gamble at these casinos.

Another recommendation is for there to be organizations responsible for monitoring the casinos, providing security and social services such as counseling.

**OUTCOMES**
The findings will increase public awareness and knowledge on the pros and cons of casino gambling.

Policy makers will be better informed about the potential contribution of casino gambling to Jamaica’s economic development.

**Professor Ian Boxill**, the researcher, is a Professor of Comparative Sociology in the Department of Sociology, Psychology and Social Work, UWI, Mona.  ian.boxill@uwimona.edu.jm
PUTTING ENOUGH FOOD ON THE TABLE
Everyone needs food to live. Having enough food to feed ourselves and our families is one of the most important functions governments have to perform. Recently, Jamaica and other Caribbean countries have been faced with a ‘food crisis.’ This crisis involves finding money to pay for the food we import as well as finding sufficient quantities of food to meet our demand for food.

RISING FOOD PRICES
Last year alone, the food import bill of most developing countries rose by some 25 percent, forcing governments to impose price controls on the taxes we pay for food. One of the ways in which countries have tried to deal with this food problem is by encouraging more local farmers to grow the foods we need to feed ourselves. Governments use this approach because they recognise the relationship between those who sell food such as farmers and those who buy food such as hotels, supermarkets, and the ordinary consumers.

DECLINING FOOD EXPORTS
Concerns about the reduction in food exports, increasing food prices, rising production costs and more worldwide competition prompted this research by the UWI about the future of agriculture in Jamaica and the Caribbean. The research looked at and tried to understand the link between ‘buyers’ and ‘sellers’ in the local market, and the problems and challenges faced in creating a better organized and more successful food supply.

SEARCHING FOR ANSWERS
The researchers first reviewed past work on different trends in Jamaican agriculture (including successful and unsuccessful projects), and compared agricultural best practices around the world, in order to find some schemes which could possibly be used in Jamaica.

Interviews were also done with key persons from the agricultural sector to find out what were some of the problems they were experiencing in Jamaica with the hope of finding some possible solutions.
An islandwide survey was undertaken. It looked at issues such as yield and manufacturing problems and solutions, the use of more up-to-date equipment, young persons in farming, the role of the government, access to money or loans, issues of quality, operations and supply, as well as issues of poor local human ability.

EXAMINING THE FINDINGS
The data is now being studied, and the UWI hopes that the findings from the research will provide solid information to assist those in government to develop practices and policies that can lead to making agriculture in Jamaica better.

Some initial findings, however, show that there is a serious lack of understanding between those who buy food and those who sell food in the island, meaning that local farmers cannot meet the demands of local buyers. This problem has been labelled the ‘agriculture-food disconnect’. Other factors making the problem worse include: issues of not enough or improper machinery; weak support from the government, business and society; access to money and loans; issues of quality; operations and supply problems, as well as limited human abilities.

RAISING PUBLIC AWARENESS
The UWI hopes that the project will encourage public discussion around the issues. A series of education programmes, town-hall meetings, workshops, seminars and conferences will also take place in early 2009. Secondly, there will also be a series of newspaper articles, policy documents and books based on the study. In addition to this, a task-force will be established which will follow up on policy suggestions.

Dr. Lloyd Waller, the lead researcher, is a Lecturer in Methodology at the UWI, Mona. He is the Strategic Polling & Survey Manager in the Research Unit of the Center for Leadership and Governance as well as the Logistic Survey Manager for the Boxill Polls. lloyd.waller@uwimona.edu.jm
HOW DO CHILDREN BECOME CRIMINALS?
Violent crime is one of the biggest challenges facing the people of Jamaica. The extent to which children are the victims of these violent crimes is something that Dr. Claudette Crawford-Brown has been investigating for the last ten years. She was prompted to do this study due to the increasing prevalence of children becoming victims as well as perpetrators of violence in Jamaica.

FACTORS INFLUENCING CHILDREN TO BECOME CRIMINALS
What natural or nurturing factors influence children and adolescents to become criminals in adulthood? The study looked at the family and community factors and other factors which caused children to develop criminal tendencies. Family factors were: the absence of mother, little or no contact with mother, little or no contact with father and instability in parenting arrangements e.g. child being moved from relative to relative, or from a relative’s home to the streets.

Community factors identified were: contact with gang members and contact with negative role models.

Other factors included the severity of a child’s behavioural problems and whether or not he/she received counseling or other forms of assistance.

PREDICTING WHICH CHILDREN WILL BECOME CRIMINALS
These factors can assist professionals working with children in the Caribbean to identify the children most at risk for developing criminal behavior.
DR. CRAWFORD-BROWN (2ND LEFT) TRAINED POLICE/COMMUNITY MENTORS FOR CHILDREN WITH BEHAVIOURAL PROBLEMS
EFFECTIVE STRATEGIES
The study tested the effectiveness of various forms of counseling and other strategies designed to reduce behavioural problems. Some strategies that were found to be effective among the Jamaica children investigated were: art and play therapy; mentorship e.g. big brother/big sister partnerships; street theatre and role play using puppets.

CHILDREN’S RESPONSE TO VIOLENCE
Two mains categories of reactions to violence were observed. One group of children displayed the classic responses to violence: aggression, withdrawal, depression and anxiety. The second and of greater concern, were the children who appeared to exhibit no observable reaction, dubbed by the researcher the ‘a nuh nutten syndrome.’ The concern is grounded in the reality that these children’s reaction suggests that violence they witness or experience has no consequence. This attitude to violence has serious implications for their ability to function appropriately in the society.

BENEFITS
A range of violence prevention tools e.g. workbooks, posters, story books and manuals, has been produced from this study for children age 5-17 years. UNICEF (United Nations Children’s Fund) has undertaken to train professional in the use of these tools and to distribute them in schools across the island.

A textbook entitled ‘Children in the Line of Fire: the Impact of Violence and Trauma on Children and Families in Jamaica’ has been produced from this study.

Dr. Claudette Crawford-Brown is a Lecturer in Social Work in the Department of Sociology, Psychology and Social Work, UWI, Mona and Founder & Coordinator of the Violence Prevention Programme at the UWI, Mona. claudettebrown@hotmail.com
CULTURE & POLITICS IN THE JAMAICAN SOCIETY

DR. LAWRENCE POWELL
Understanding cultural habits is essential when designing policies to meet the needs of the Jamaican people.

Most national studies, from which policies are designed, have mostly looked at economic and legal aspects of Jamaican social life. Those past studies, therefore, collected information about the income, age and gender etc. and not the ‘habits of the heart’ i.e. the personality traits and values of the Jamaican people.

CONDUCTING A DIFFERENT KIND OF SURVEY
In the 2006, 2007 and 2008 ‘national values surveys,’ Dr. Powell and his team investigated the expectations of the public in several areas including: whether Jamaicans trust each other, respect the police, and their level of confidence in various institutions such as the family, the church, schools and universities. The researchers also looked at who has the responsibility to provide citizens with the basic human needs and who is responsible to correct social ills – the individual or the government.

JAMAICANS CHOOSE THE GOVERNMENT
The results show that citizens have a high preference for government, rather than individual persons, to solve social problems. Dr. Powell also notes that this view is in contrast to the United States where the society is more individualistic. Jamaican scores on an ‘individual vs. government responsibility’ scale are consistently closer to the ‘government’ end of the scale, as opposed to the US, where scores tend to be closer to the ‘individual’ end.

The study goes on to show the social needs most essential to Jamaicans are health and medical care; and protection of helpless, socially-disadvantaged groups such as the sick, disabled and elderly. The study found that there is a general dependence on government, as opposed to the individual, to provide for social needs. The high dependence on governments creates an environment where citizens are not likely to be satisfied with the performance of any political party. This heavy dependence on government to solve problems, in a country of meagre resources, is a source of feelings of unfair treatment.

TRUST: THE GLUE THAT HOLDS SOCIETY TOGETHER
A significant part of the research surrounds the issue of trust, asking the question “to what extent are Jamaicans predisposed to trust other persons
and to have trust in leaders and the major institutions of the society?” The three successive yearly surveys found, in each instance, that over 80% of Jamaicans believe that most persons could not be trusted. Though most Jamaicans showed caution in trusting others, when asked whether “most people are basically good” they tended to be somewhat more optimistic. Hence, the mistrust may be a reflection of a disintegrating society and not a reflection of the levels of faith in each other.

GOVERNMENT SHOULD FOCUS MORE ON SOCIAL INTEGRATION
It is on this premise that the research team affirms the need for government to first focus on trust-building community integration strategies in order to address social issues such as violent crime, poverty and unemployment. Government must also find a way to successfully address the interpersonal distrust levels within communities in order to have a better impact of social policies and sustainable development.

NEED FOR CULTURALLY APPROPRIATE POLICIES
To assume that such culturally-rooted ‘habits of the heart’ are unimportant or unmeasurable runs the risk of generating national policies that will be socially and culturally ineffective.

The research should be of value to policy makers in Jamaica as the analysis helps to identify policies that are most likely to be favoured by the electorate, as opposed to the strategies that may result in resistance or alienation by citizens.

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“New knowledge is the most valuable commodity on earth. The more truth we have to work with, the richer we become.”