MATTER: International Journal of Science and Technology
ISSN 2454-5880

CONFERENCE PROCEEDINGS

Scientific and Technical Research Association

ICRST (2018) Vth International Conference on Researches in Science & Technology, 28-29 May 2018, Lisbon, Portugal

28- 29 May 2018

Conference Venue

Congress Centre, Tecnico (Universidade de Lisboa), Campus da Alameda, Lisbon, Portugal

KEYNOTE SPEAKER

Cecília R.C. Calado

Professor (Ph.D. in Biotechnology) Coordinator of MSc in Biomedical Engineering Coordinator of the R&D Lab. Medical BioEngineering. High Institute of Engineering of Lisbon (ISEL-Instituto Superior de Engenharia de Lisboa) Rua Conselheiro Emídio Navarro, 1 - 1959-007 Lisboa, Portugal

Coordinator of the MSc in Biomedical Engineering. Responsible for the R&D Laboratory in Medical BioEngineering. Teaches in the area of Biotechnology and Protein Engineering. Presents a broad experience in R&D in Bioprocess Engineering and on Discovery and Development of New Drugs. Promotes various activities to enhance public awareness of Science, such as Presentations on Patents and Technology Transfer. Ph.D. in Biotechnology, MSc in Biochemical Engineering, Honours degree in Biochemistry.

Topic: System Biology towards the discovery of Biomarkers for Medical Diagnosis

PLENARY SPEAKER

Dr. James Tanoos
Clinical Associate Professor, Purdue University West Lafayette, Indiana, USA

Topic - Academic Research and Mutual Benefit: Engaging student research assistants in the creative writing process

Gurkan Tuna **GICICRST1803051**	**Long-Term Electric Load Forecasting: A Comparison Of The Performance Of Artificial Neural Networks And Classification Methods** **Gurkan Tuna** **Trakya University, Edirne, Turkey** **Resul Daş** **Fırat University, Elazığ, Turkey** **Abstract** **It is very important to plan the supply, demand, transmission, distribution and pricing in order to ensure the successful development of the electricity energy sector and to secure the functioning of the sector. One of the most important problems of the planning works to be done is future demand information. The inability to store electricity energy in large quantities practically explains very well the importance of the accuracy of the demand estimate. The fact that the estimates are correct and close to real values is of great importance for the planning studies of electrical grids. In this study, it is aimed to emphasize the importance of the load-forecasting plan, which is made in order to provide the electricity users with high quality, economical and continuous electricity in the long term. The data set obtained during the period from December 2011 to April 2013 is examined in the study. In this data set, the load forecasting plans of Istanbul, Ankara, İzmir and Şanlıurfa are examined and the results are evaluated. Artificial neural network models, regression trees and support vector machines are used to generate the load-forecasting plan. The results obtained from the estimates made are compared with the results in the literature, obtained using different methods.** **Keywords: Load-Forecasting Plan, Artificial Neural Networks, Regression Analysis, Support Vector Machine, Estimation Methods**
Lee Liu **GICICRST1803053**	**Environmental Health, Safety, and Sustainability: A Tale of Three Cities in China** **Lee Liu** **School of Environmental, Physical and Applied Sciences, University of Central Missouri, Warrensburg** **Abstract** **In this paper, I share my recent field research experience in mysterious cancer villages and exploded factory sites in China. It is the first time those stories are told and their implications are examined. The stories provide insights into the relationship between environmental health, safety, and justice. Large-scale air pollution such as the smog in Asia may appear as a threat to equally affect everyone who breathes the air. However, it actually means severe injustice to disadvantaged populations. Furthermore, the lecture attempts to help uncover some deeper connections among socio-economic inequalities, poverty, environmental pollution, environmental health, safety, justice, and sustainability. Accidents could have been prevented with safety, health, justice, pollution, inequalities, and sustainability. The post-accident management focused on punishing those responsible for safety, not on inequality, pollution, health, justice, or sustainability. The measures are bound to fail but will be successful if all sustainability elements are taken care of at lower costs.**

Adeyanju A.A.
GICICRST1803055

Effects of Vehicular Emission on Environmental Pollution in Lagos

Adeyanju A.A.
Mechanical and Manufacturing Engineering Department, University of the West Indies, St Augustine, Trinidad

Abstract

The air we breathe is a mixture of gases, particulate solids, and liquid matter. Some of these substances come from natural sources while others are caused by human activities such as our use of motor vehicles, domestic activities, industries and businesses. Air pollution occurs when the air contains substances in quantities that could harm the comfort or health of humans and animals, damage plants, and materials.

The study investigates the concentrations of CO, NO2, SO2, CO2 and HC arising mainly from the activities of motor vehicles, on the ambient air quality of selected sites in the Lagos metropolis and the locations of Oshodi, Ojota, Yaba and Lekki. The final location (Lekki) was used as a control due to its low level of pollution.

The air pollution monitoring was carried out during both the dry and wet season. Results from dry season vehicular emission monitoring indicate that the average CO concentration at the Oshodi site peaked at 29.04 ppm. The site also recorded the highest concentrations for NO2, SO2, CO2 and HC at 0.042ppm, 0.040 ppm, 370.92 ppm and 0.030 ppm respectively. In the wet season, Oshodi also recorded highest CO concentrations at 18.72 ppm. NO2 was highest at 0.03 ppm in Yaba and Ojota. Both Oshodi and Ojota areas recorded the highest SO2 concentration at 0.032 ppm. Oshodi recorded the highest concentrations for both CO2 and HC at 370.92 ppm and 0.028 ppm respectively.

Results from comparison of the average CO concentration with the National Ambient Air Quality Standard (NAAQS), showed that CO concentrations in virtually all sites exceeded the 10 ppm (for an averaging time of 1 hour) in both seasons. The same was true for SO2, which exceeded the 0.01 ppm limit for an averaging time of 1 hour. The NO2 limit of 0.04 ppm (1 hour averaging time) was exceeded at Oshodi in the mornings, Ojota in the afternoons, and in the evening hours at Ojota, Oshodi and Yaba (all in the dry season).

All sites were within the NAAQS during the wet season. Results from comparison of the pollutant concentrations at the three study locations indicate that all pollutant concentrations decreased with increased distance from the traffic sites. The model is useful for planning of residential and other facilities in the Lagos metropolis and beyond.

In addition, the results obtained from a questionnaire on the effect of vehicular emission on human health show that on the average, 28.3%, 16.6%, 23.3%, 18.3%, 13.3% were respectively affected by sleeplessness, running nose, heavy eyes, asthmatic attack, and headache respectively.

The location (distance from the coast) type of fuel, availability of industries, and concentration of traffic determine the impacts of these emissions on the ecosystem.

Keywords: Vehicular Emissions; Environmental; Pollution; illness; Survey; Lagos.

Eunice Maia de Andrade
GICICRST1803056

Input and balance of nitrogen and phosphorus in a reservoir in the tropical semi-arid region

Eunice Maia de Andrade
Departamento de Engenharia Agrícola, Universidade Federal do Ceará, Fortaleza, Brasil

Kássia Crislayne Duarte Ferreira
Programa de Pós-graduação em Ecologia e Recursos Naturais, Universidade Federal do Ceará, Fortaleza, Brasil

Fernando Bezerra Lopes

	Departamento de Engenharia Agrícola, Universidade Federal do Ceará, Fortaleza, Brasil **Helena Becker** **Departamento de Química Analítica, Universidade Federal do Ceará, Fortaleza, Brasil** **Antonio Givanilson Rodrigues da Silva** **Departamento de Engenharia Agrícola, Universidade Federal do Ceará, Fortaleza, Brasil** **Abstract** **The eutrophication of water reservoirs increases the cost of treating the water for its many uses, it is therefore necessary to understand the nitrogen and phosphorus supply, as they support the process of eutrophication. In seeking to quantify the input and balance of nitrogen and phosphorus, as well as to identify the effect of climatic seasonality on their dynamics, 21 campaigns were carried out for water collection. The campaigns took place from April 2008 to December 2012 at the Orós reservoir, located in the semi-arid region of Brazil in the south-central part of the State of Ceará. It was possible to calculate the inflow and outflow of nitrogen and phosphorus during the study period. To do this, the nutrient balance of the reservoir was verified. Retention of nutrients by the body of water was identified, the reservoir becoming a storage place for the nutrients transported by the flow of water from the drainage network of the river basin. A total of 176 tons of nitrogen and 230 tons of phosphorus were retained during the study period. The low output rate of the nutrients over time compared to the intake characterises the reservoir as a nutrient sink in relation to the Jaguaribe river basin. Because it is a predominantly agricultural basin, and the nutrients show a similar input trend in the reservoir, it is believed that the primary source of nutrients is agriculture and livestock. There has been an increase in nutrient input of over time.** **Keywords: nitrogen, phosphorus, supply of nutrients, mass balance, semi-arid eutrophication**
Maria Simas Guerreiro **GICICRST1803057**	**Small rainfall events on soil moisture content in tropical dry forests** **Maria Simas Guerreiro** **FP-ENAS, Universidade Fernando Pessoa, Porto, Portugal** **Eunice Maia de Andrade** **Universidade Federal do Ceará, Fortaleza, Brazil** **Helba Queiroz Palácio** **Instituto Federal do Ceará, Iguatu, Brazil** **José Bandeira Brasil** **Universidade Federal do Ceará, Fortaleza, Brazil** **Abstract** **Increased droughts and variable rainfall patterns may alter biodiversity and lower potential for secondary forest regrowth, reducing capacity to provide ecosystem services. Small rainfall events play an important role in soil water storage in tropical dry forests (TDF), reducing vegetation vulnerability during drought years. This study was based on rainfall data from 1974-2017 and runoff and soil moisture content from 2010-2017 at two small catchments under natural dry tropical forest vegetation and thinned vegetation in a semi-arid region of Brazil. Soils are vertisols, one of the major soil orders in semi-arid tropics, with expansive clays that crack during dry spells and expand and seal under wet conditions. The objective of this study is to analyze rainfall distribution and soil moisture content in a tropical dry region, subject to precipitation pulses and intra seasonal droughts, to improve watershed management to value**

	ecohydrology communities. A series of 44 years of daily rainfall (1974-2017) shows an interquantile range of rainfall events from 5 mm to 23 mm, with a significant decrease in the number of events below 8 mm (p-value 0.03), but no significant difference in total rainfall from these small events. The eight years of rainfall, runoff and soil moisture data (2010-2017) indicate that soil moisture content is always above 23% after a runoff producing event, and for all rainfall events above 30 mm rainfall. Runoff occurs with rainfall events above 8 mm. Dry years (2013-2017) are characterized by low runoff compared to wet years (2010-2012). Soil water content ranges during wet and dry years is similar, suggesting that the small rainfall events are important in controlling the water balance processes to maintain plant distribution and growth. **Keywords: semiarid region; tropical dry forest; storage; pulse**
Narges Darvish Talkhoncheh **GICICRST1803058**	**Recognizing the Physical role and Impact of Iranian Garden on Iranian Arts; (A Case study of Carpet)** **Narges Darvish Talkhoncheh** **Ph.D student in Department of art and architecture, south Tehran branch, Islamic Azad University, Tehran, Iran** **Dr. Hadi Ghodusifar** **Assistant Professor, Faculty Member of Islamic Azad University, South Tehran Branch** **Abstract** **Crisis in the relationship between man and nature along with population density in the present age have caused the emergence of stressful environments. Nature is effective in responding to human needs including the need for peace and self-prosperity and enhancing the mental health of individuals and groups and the appropriate presence of nature in living environments reduces many of mental, physical and social illnesses in communities. In this regard, architects, organizers and city planners have proposed the idea of designing home, healing and public gardens in cities for citizens in order to meet the need and be related to nature. Iranian garden like architecture, poetry, painting, music and other branches of Iranian art has some subtleties within the framework of tradition and principles and is of the highest ranking in the unity of diversity. In creating Iranian gardens, the verdancy of trees and plants, dynamics and joyful presence of water, the attractive sound of birds, pleasant air, beauty and the ultimate savings and efficiency with their all aspects are considered. Iranian garden in other Persian arts such as carpets, handicrafts, miniature, prose and verse literature and also music has displayed a design of garden or its mindset in itself. And this display is manifested in the most practical art forms such as rug and carpet weaving to the most subjective and fantastic sound of music.** **Keywords: Iranian garden, architecture, carpet, Persian arts, creation of garden**
 **Neviana Krasteva** **GICICRST1803065**	**Implementation of the Swedish Concept Lagom in Marketing in Bulgaria** **Neviana Krasteva** **Faculty of Economics and Business Administration, Sofia University ,St. Kl. Ohridski, Bulgaria** **Abstract** **The study is based on a field research of marketing practices in tourism in Bulgaria and the possible implementation of the concept Lagom in company strategies. The Swedish concept Lagoom is explained as well as the methodology of the research. The conclusions are based on the results from the research.**
Nazanin Pilevari Salmasi **GICICRST1803071**	**Forecast wind speed by neural networks to design wind farms** **Nazanin Pilevari Salmasi** **Yadegar Emam Islamic Azad University of Shahr-e Rey, Associate Professor** **Ali Jabalameli**

	Islamic Azad University, Science and Research Branch, Tehran, PHD Student **Abstract** **The main parameter in the design of wind power plants is the speed and quality of the wind blowing, which is measured and recorded by the installed sensors at different heights. These data play an essential role in designing the type and layout of wind turbines, and their prediction can provide investors and designers with a clearer picture of energy extraction and power generation. One of the recommended methods for predicting wind speed is the use of neural networks, which can be used to analyze and predict occurrences and values using pre-observed data. In this study, wind speeds at the height of eighty meters were predicted using four-year data obtained from the Kuhin subtropical station. Also, the accuracy of information, the importance of other variables in prediction, as well as the prediction of line equation, are other results of this study. This set of information can be used to increase the accuracy of design calculations for wind power plants.** **Keywords: Wind energy, Wind power plant, Wind velocity forecast, Neural networks**
Nesimi Uludag **GICICRST1803078**	**A New Synthesis Route to the Stychnos-Type Alkaloids** **Nesimi Uludag** **Department of Chemistry, Faculty of Science and Arts, Namık Kemal University, 59030, Tekirdag, Turkey** **Mustafa Kemal Gumus** **Artvin Coruh University, Science-Technology Research and Application Center, Seyitler Campus, 08100, Artvin, Turkey** **Abstract** **A novel approach to preapare the core structure of strychnos-type alkaloids is described. The strategy is based on a Fischer indole synthesis. It is known to have a wide variety of applications including the synthesis of indole ring, often present as the framework in the total synthesis of natural products an indole alkaloid. In this study, we are trying to constitiue the tetracyclic framework of strychnos-type alkaloids as well as the ABDE substructure of the strychnos alkaloid family, which is applied to the total synthesis of biologically active natural products and some other complete targets. This important complexity-generating transformation provides the tetracyclic core of many indole monoterpene alkaloids in only three steps from commercially available starting materials and played a key role in the short syntheses of uleine dasycarpidone, deethyltubifolidine, tubifolidine.** **Keywords: Strychnos alkaloids, 1,5-Methanoazocino[4,3-b]indole, Uleine, Tubifolidine, Dasycarpidone**
Tijana Đorđević **GICICRST1803079**	**Phytochemical screening of fermented and unfermented wheat and corn straw extracts as potential biocontrol agents** **Tijana Đorđević** **Institute of Pesticides and Environmental Protection, Laboratory of Chemistry, Belgrade, Serbia** **Jovana Hrustić** **Institute of Pesticides and Environmental Protection, Laboratory of Phytopathology, Belgrade, Serbia** **Milica Mihajlović** **Institute of Pesticides and Environmental Protection, Laboratory of Phytopathology, Belgrade, Serbia** **Marija Sarić-Krsmanović** **Institute of Pesticides and Environmental Protection, Laboratory of Herbology,**

	Belgrade, Serbia **Jelena Gajić Umiljendić** **Institute of Pesticides and Environmental Protection, Laboratory of Herbology, Belgrade, Serbia** **Abstract** **In pest management, the tendency towards application of natural products, such as plant extracts, as safer alternative for synthetic pesticides, is increasing. The objective of this study was to investigate usability of agro-industrial by-products, as rich sources of natural bioactive compounds, for weeds and plant pathogen control.** **Total phenolic (TPC) and flavonoid (TFC) content of methanol extracts of wheat (WS) and corn straws (CS) were determined using spectrophotometric methods, and individual phenolic and flavonoid compounds were identified using HPLC method. Antioxidant activities were evaluated by DPPH and FRAP assays. In vitro antagonistic activity assays were performed against Monilinia fructicola isolate NPGM and Colletotrichum acutatum isolate Coll using wells technique in Petri plates. Germination bioassay was conducted to evaluate the biological activity of extracts on germination percentage (GP) and seedlings length (SL) of Abutilon theophrasti seed. Further, WS and CS were modified by fermentation-based pre-treatment with sulphuric acid in order to convert straw into a fermentable substrate, and finally fermented by Lactobacillus plantarum. Changes in TPC and TFC, antioxidant and biological activity for extracts of those samples were investigated.** **Obtained results showed that TPC were 63.6 and 57.7mg GAE/g dry extract (DE) of WS and CS respectively, while TFC were 151.6 and 123.5mg QE/g DE. After pre-treatment recovery of phenolic and flavonoid compounds was improved, thus TPC and TFC were 76.2 and 59.8mg GAE/g DE and 185.4 and 136.6mg QE/g DE for wheat and corn, respectively. Fermentation did not further significantly affect TPC (75.4 and 64.1mg GAE/g DE for wheat and corn), but did affect their TFC improving its recovery up to 223.9 and 179.1mg QE/g DE respectively. HPLC analysis of the methanol extracts reveals that all samples contain mainly p-coumaric and ferulic acid. Among hydroxycinnamic acids there were lower amounts of cinnamic and caffeic acid as well. Hydroxybenzoic acids, such as gallic, vanillic, p-hydroxybenzoic and protocatechuic, were also found along with flavonoids rutin, myricetin and luteolin, and lower amounts of quercetin and catechin. Fermentation and pre-treatment of straw, both wheat and corn, modified the content of phenolic and flavonoid compounds, but differently in each case. All tested extracts (at concentration 1 mg/mL) showed high DPPH activity (69.20-76.28% for wheat, 80.53-84.25% for corn) compared to one of BHT (92.92%) with half-inhibitory concentration IC50 being 550.2 and 511.6µg/mL for raw and modified WS, and significantly lower for fermented one-61.5µg/mL, compared to BHT (48.5µg/mL). Significantly lower IC50 was recorded for CS (234.4, 248.2 and 19.6µg/mL, respectively). FRAP activity was also high in all samples, with FRAP values somewhat higher for wheat (426.8-434.5µmol Fe(II)/g DE) compared to corn (380.6-427.8µmol Fe(II)/g DE). The results of bioassay showed that CS extract was more effective concerning inhibition of seed germination comparing to WS (45.16 vs. 38.71%). However, reducing of seedlings length was higher with WS (88.50 vs. 78.64% for CS). Pre-treated and fermented WS and CS caused lower inhibition of germination and seedling growth (16.13/12.90% and 53.67/52.83% for wheat; 19.35/9.68% and 66.13/71.71% for corn). Considering antagonism, the extracts did not inhibit the growth of tested phytopathogenic fungi after 72h incubation at 24°C.** **Obtained result indicate that methanol extracts of wheat and corn straw, both raw and fermented, has the potential to be used as a natural source of phenols and flavonoids and as a natural organic crop herbicide.** **Keywords: plant extract, phenolic content, flavonoid content, antioxidant activity, plant pathogens, seed germination**
Nesimi Uludag	**A New Synthesis Route to the Stychnos-Type Alkaloids**

GICICRST1803082	**Nesimi Uludag** **Department of Chemistry, Faculty of Science and Arts, Namık Kemal University, 59030, Tekirdag, Turkey** **Mustafa Kemal Gumus** **Artvin Coruh University, Science-Technology Research and Application Center, Seyitler Campus, 08100, Artvin, Turkey** **Abstract** **A novel approach to preapare the core structure of strychnos-type alkaloids is described. The strategy is based on a Fischer indole synthesis. It is known to have a wide variety of applications including the synthesis of indole ring, often present as the framework in the total synthesis of natural products an indole alkaloid. In this study, we are trying to constitiue the tetracyclic framework of strychnos-type alkaloids as well as the ABDE substructure of the strychnos alkaloid family, which is applied to the total synthesis of biologically active natural products and some other complete targets. This important complexity-generating transformation provides the tetracyclic core of many indole monoterpene alkaloids in only three steps from commercially available starting materials and played a key role in the short syntheses of uleine dasycarpidone , deethyltubifolidine, tubifolidine.**
Assoc Prof Dr Aynur DEMIR **GICICRST1803089**	**The Importance of Economic Valuation Approach for the Sustainable Use of Biodiversity** **Assoc Prof Dr Aynur DEMIR** **Aksaray University, Department of Urbanization and Environmental Problems,** **Abstract** **The concept of biodiversity which is entered to the literature in toward the end of the 1960s, has been the focus of the global economy increasingly over recent years. The adoption of the sustainable development model in the conservation of biodiversity and inclusion of conservation policies into the economic policy plays an important role in meeting the needs of today's and future generations. Countries with the rich biodiversity form a potential strategic force on a global scale. The power in their hands of the countries that were been adopting the sustainable development policies in the conservation and use of biodiversity can be converted to the ecological and economic benefits with the systematic and integrated protection policies for implementation. The most important condition for the protection measures to be successful has been possible by knowing the value of the biodiversity. In this study, the importance of economic valuation approaches was emphasized in the determination to the increasing importance of biodiversity for the sustainable and economic development. The goods and services provided by the biodiversity have been determined. The biodiversity and the loss of biodiversity have been tried to be determined the important of economically and evaluated together with the ecological processes.** **Keywords: Biodiversity, Economic Value, Sustainable Development, Protection Policies, Ecological Processes**
Sara Medina **GICICRST1803090**	**Boosting scientific and technological innovation: The case of the European Network of Research and Innovation Centres and Hubs (ENRICH) in Brazil, China and USA** **Sara Medina** **Member of the Board of Sociedade Portuguesa de Inovação (SPI) – Porto, Portugal** **André Barbosa** **Senior Consultant of SPI, Porto, Portugal**

	Carolina Turcato **Senior Consultant of SPI, Porto, Portugal** **Abstract** **The European Network of Research and Innovation Centres and Hubs (ENRICH) is a network-based initiative gathering Europe-wide efforts and actors to connect and support European science, technology and innovation actors in targeted innovation frontrunner markets - Brazil, China and USA - ultimately fostering European Science, Technology and Innovation (STI) excellence and leadership at a global scale. The main objective of ENRICH is to foster the European excellence and leadership throughout the provision of services to European organisations, such as Universities, Research Centres, Research Councils, Innovation Agencies, Funding Agencies, STI networks and platforms, among others, to cooperate, connect, expand and scale business and innovation development with the three strategic partner countries mentioned above.** **Promoting the excellence of European STI means meeting the challenges of competitiveness and of creating high-quality jobs within the international scene. The key for meeting these challenges internationally is to find trusted partners and work in synergy with them, to create fertile ecosystems where new ideas meet new skills and competences.** **This is the background context in which ENRICH operates. ENRICH services intend to address all the needs for support of an European STI organisation when addressing the abovementioned international markets, ranging from training activities up to soft landing and co-working, including as well networking, intelligence, consultancy, among others.** **As a network-based initiative, ENRICH aims to raise awareness and interest about the Centres and its services and the advantages of developing interactions, ultimately capturing the attention of potential new members and participants. This strategy is built upon a concept called "Community" which includes different levels of engagement of various types of stakeholders, acting as an interface among distinct players of the innovation value chain. All centres have a diversified service offer, which aims at connecting local entities, such as researchers, academia, businesses or public entities, to EU stakeholders in order to boost new collaboration schemes.** **Keywords: STI, China, Internationalisation, emerging markets**
Jay Mar Ducusin **GICICRST1803094**	**Sustainable Schools: The Interplay Between Waste Management And Food Consumption** **Jay Mar Ducusin** **Student Researchers, Lorma Colleges Senior High School** **Abegail Fontanilla** **Student Researchers, Lorma Colleges Senior High School** **Alyssa Ashley Pang-ag** **Student Researchers, Lorma Colleges Senior High School** **Kathlyn Joyce Tayaban** **Student Researchers, Lorma Colleges Senior High School** **Fernando Oringo** **Research Advisers, Lorma Colleges Senior High School** **Antonette Ongngad** **Research Advisers, Lorma Colleges Senior High School** **Abstract** **Climate change poses a major threat to humanity. Researchers and communities have shown us that climate change affects where people can live, grow food,**

	maintain infrastructure, and be healthy. Climate change is connected with many other global issues. Youths are considered the next generation heroes. They are in the age where they spend more time in school than in any other place that is why it can be a great opportunity to help our planet by means of a proper waste management as well as the students itself. Students were encouraged to reduce waste at the source because this prevents the generation of waste. It is true, however, that schools are teaching students on the importance of waste management in our everyday life. But the basic knowledge of how waste must be throw into proper places or how dirty environment will affect the human body. It is important that primary school children be informed about the relation between waste management and health. This study aimed to answer the following problems: a) How can waste management in schools be an instrument towards responsible food consumption? and b) What are the possible interventions can be employed by the schools in San Juan on managing food waste? This action research made use of interview and survey to all janitors and canteen owners of Lorma Colleges San Juan campus. As a result, the researchers came up with an action plan on addressing the SDG 13 which is the Climate Action that focuses on sustainability in schools highlighting waste management and food consumption. With the said program, the integration of schools in taking action towards the challenges brought by climate change will ensure every student to take part and become problem solvers. **Keywords: climate change; food consumption; waste management; school; sustainability**
 **Dr. James Tanoos** **GICICRST1803054**	**Rust Belt America: Coal Usage and Pollution Rates in the Lead-up to Emissions Regulations?** **Dr. James Tanoos** **Clinical Associate Professor, Purdue University, West Lafayette, Indiana** **Abstract** **Introduction: The coal energy issue was the subject of debate and an area of diametric difference in policy stances between the two major US presidential candidates during the 2016 presidential election season. Then-candidate Trump positioned the Obama administration as being anti-coal and insinuated that Obama's numerous US Environmental Protection Agency (EPA) mandates enacted during his administration had cost jobs and economic prowess in these areas and contributed to the closing of factories and subsequent decrease in the standard of livings of citizens living there. Candidate Hillary Clinton defended the Obama policies and claimed that many states and organizations already had and should voluntarily shift their usage of energy to more sustainable models.** **Coal was considered to be a regional issue specific to the Midwest-US geographic region, or Rust Belt, rather than a national issue, and despite the differences in candidate positions, it did not garner much national attention or merit much discussion in the televised presidential debates or in the national press. Coincidentally, the Midwest included the most swing states, or states that either candidate could win (Schultz, D. & Hunter Hecht, S., 2015). Hillary Clinton's eventual loss was attributed to losing key battleground states in the Midwest, including Pennsylvania, Michigan, and Wisconsin. Many consider the coal issue to be a key factor in Trump's winning these states.** **While there were many claims during this time that coal-fired energy plants were being shut down, there has been no analysis of the direction of coal trends in these states before the Obama-era EPA actions. Were these states voluntarily decreasing their coal emissions and shifting to more environmentally-friendly power sources before the EPA mandates, or did the EPA effectively shut down coal operations after implementation?** **This study will examine the rates of coal usage by states located in the Rust Belt. A clear picture of macro coal usage in the years leading up to the anti-coal EPA regulations will indicate which candidate's talking points had the most merit. The results of this analysis might further clarify whether future government mandates would be necessary or desirable as a means to prompt a shift toward**

	more sustainable energy sources.
Sara Medina **GICICRST1803090**	**Boosting scientific and technological innovation: The case of the European Network of Research and Innovation Centres and Hubs (ENRICH) in Brazil, China and USA** **Sara Medina** **Member of the Board of Sociedade Portuguesa de Inovação (SPI) – Porto, Portugal** **André Barbosa** **Senior Consultant of SPI, Porto, Portugal** **Carolina Turcato** **Senior Consultant of SPI, Porto, Portugal** **Abstract** **The European Network of Research and Innovation Centres and Hubs (ENRICH) is a network-based initiative gathering Europe-wide efforts and actors to connect and support European science, technology and innovation actors in targeted innovation frontrunner markets - Brazil, China and USA - ultimately fostering European Science, Technology and Innovation (STI) excellence and leadership at a global scale. The main objective of ENRICH is to foster the European excellence and leadership throughout the provision of services to European organisations, such as Universities, Research Centres, Research Councils, Innovation Agencies, Funding Agencies, STI networks and platforms, among others, to cooperate, connect, expand and scale business and innovation development with the three strategic partner countries mentioned above.** **Promoting the excellence of European STI means meeting the challenges of competitiveness and of creating high-quality jobs within the international scene. The key for meeting these challenges internationally is to find trusted partners and work in synergy with them, to create fertile ecosystems where new ideas meet new skills and competences.** **This is the background context in which ENRICH operates. ENRICH services intend to address all the needs for support of an European STI organisation when addressing the abovementioned international markets, ranging from training activities up to soft landing and co-working, including as well networking, intelligence, consultancy, among others.** **As a network-based initiative, ENRICH aims to raise awareness and interest about the Centres and its services and the advantages of developing interactions, ultimately capturing the attention of potential new members and participants. This strategy is built upon a concept called "Community" which includes different levels of engagement of various types of stakeholders, acting as an interface among distinct players of the innovation value chain. All centres have a diversified service offer, which aims at connecting local entities, such as researchers, academia, businesses or public entities, to EU stakeholders in order to boost new collaboration schemes.** **Keywords: STI, China, Internationalisation, emerging markets**

LISTENERS

Isaac N Onukogu **Bursary Department, Federal polytechnic Bauchi State, Nigeria, Bauchi state, Nigeria** **GICICRST1803064**
Ayoola And Olawunmi **Establishment Unit/Moshood Abiola, Polytechnic Ojere Abeokuta, Moshood Abiola, Polytechnic Ojere Pmb 2210, Sapon, Abeokuta/Nigeria**

GICICRST1803066
Olubode Thomas **Establishment Unit/Moshood Abiola , Polytechnic Ojere Abeokuta, Moshood Abiola , Polytechnic Ojere Pmb 2210, Sapon, Abeokuta/Nigeria** **GICICRST1803067**
Kolawole Musibau **Establishment Unit/Moshood Abiola , Polytechnic Ojere Abeokuta, Moshood Abiola , Polytechnic Ojere Pmb 2210, Sapon, Abeokuta/Nigeria** **GICICRST1803068**
Saci Mohammed **Djs,University of Mostaganem, Ain sefra -naama -45200 Algerie** **GICICRST1803069**
Osman Sesay **International Organization, Organization, Freetown, Sierra Leone** **GICICRST1803070**
Md Masdur Rahman **Proprietor, M/S Rahmania Trade International, Bangladesh** **GICICRST1803072**
Mr Mir Syef **Rahmania Trade Internationa, Bangladesh** **GICICRST180373**
Mr Oliur Rahman **Rahmania Trade Internationa, Bangladesh** **GICICRST1803074**
Osazuwa Orobosa Odeh **Research, Righteous Gate International Limited, Lagos Nigeria** **GICICRST1803075**
Muhammad Adamu **Educationist, Universal Basic Education Department Local Ministry Of Education Ido Local Government, Ibadan, Nigeria** **GICICRST1803076**
Oladayo Olaitan Odewade **Research Manager, Quite Fashion Company, 135 Iju Road, Ifako Lagos Nigeria., Nigeria** **GICICRST1803077**
Jaouad Qrich **Faculty of Physic Science, Ibn Tofail, Kenitra, Morocco** **GICICRST1803080**
Ifeanyi David Irechukwu **Engineering Federal Polytechnic Nekede , Owerri , Imo State , Nigeria, Federal Polytechnic Nekede, Owerri , Imo State , Nigeria** **GICICRST1803081**
Sulaimon Owolabi **CEO, Wolabmack, Nigeria** **GICICRST1803083**
Akhere Ibharogan **Faculty of Business Admin, Lagos State Polytechnic, Lagos, Nigeria** **GICICRST1803085**
Ojo Sakiru yomi **Engineering, Federal University of Technology Minna Niger State, Abuja, Nigeria** **GICICRST1803086**
Adedoyin Adesola **Hybeam Network, Hybeam Network, Cape Town, South Africa** **GICICRST1803087**
Daniel Kwaku Amoah **IT Department, Asbestikum Industrial Communications, South Africa** **GICICRST1803088**
Ayuko Takor Nadine **Laboratory Research, Ekona Research Center, Buea South West Region, Cameroon** **GICICRST1803091**

Amadu Jalloh
Philips Computer Institute, Roke Sesay Aid Foundation, Freetown, Sierra Leone
GICICRST1803092

Allieu Senesie
Philips Computer Institute, Roke Sesay Aid Foundation, Freetown, Sierra Leone
GICICRST1803093

Muhammad Ihsan
Information Technology, The Philips College Nicosia Cyprus, Nicosia Cyprus
GICICRST1803084