SUSTAINABILITY FOR TOMORROW

Postgraduate Conference 2017

Welcome to the Interdisciplinary Postgraduate Conference

Sustainability for Tomorrow

http://postgraduateconference.co.za/

Conference Organising Committee:

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SUSTAINABILITY FOR TOMORROW

Postgraduate Conference 2017

Welcome to the Postgraduate Conference of 2017. We are delighted to have this opportunity to share some of the cutting-edge research being conducted in our university. Knowledge is created collaboratively and it is only through sharing that we can build our way to a sustainable future.

The theme of the conference is "Sustainability for tomorrow" and throughout the two days we will be reflecting on three key questions:

1) **How does the postgraduate research at Rhodes University speak to the future?**
   In many ways, our future is in trouble: we have an economic system which has led to greater divides than ever before and we have social practices that are destroying our planet. On the other hand, knowledge continues to advance at an incredible pace and research is offering us a range of solutions which promise a more just and sustainable future.
2) **What has to be challenged in the status quo to move us towards a sustainable future?**
   Our research does far more than offer each of us a qualification. It allows us to participate in a larger knowledge project. It is our contention that this knowledge project must always be driven by a desire for a more just and sustainable future.
3) **How does our research contribute to the future in a post-truth era?**
   There is an increasing rejection of expertise in favour of populism. In this context, it is essential that researchers such as ourselves contribute towards a just and sustainable future in ways that are accessible and meaningful. We have to be bold advocates of knowledge sharing.

Welcome and enjoy the conference!
The Conference Committee

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Programme

New Building – Education Faculty Friday 29th September 2017			
14:00	Welcome Address by the Deputy Vice Chancellor: Dr. Peter Clayton		
14:15	Keynote Address: Professor Ahmed Bawa, Chief Executive Officer of Universities, South Africa. *What is the role of postgraduate education and research for South Africa, Africa, and the world.*		
	Venue 1 – Ground floor seminar room (to left of BLT)	Venue 2 – Big Lecture Theatre (BLT)	Venue 3 –Upstairs seminar room
15:00	S.J. Durr; Investigating how a farmer-buyer based mobile application can enable social learning to stimulate value creation towards a circular economy?	D. Arendse; The impact of markets disruptors on established companies	A.D. Olanike; Quartz crystal microbalance biosensor for selective and sensitive detection of C-reactive protein
15:15	M. Louzada; Non-linear behaviour of Alpha and Beta substituted Tin (IV) Phalocynanes	R. Vuzane; The effects of Carbon Emissions Tax from Motor Vehicle Sales in South Africa as Developmental State	A.O. Kayode; Development and validity of impedimetric biosensor to detect tumour-associated autoantibodies for early diagnosis of lung cancer
15:30	B. Mathibe; A thermos- and acido/alkaline-stable xylanase from Thermomyces lanuginosus VAPS24: …	C. Munyumwa; Production, purification and characterization of an acidic protease from Oiddendron maius for recovery of silver from X-ray films	A. Khairalla; The identification of natural compounds against the plasmodium GTP CyloHydrolase I (GTPCHI) enzyme
15:45	A.I. Samuel; Kaolinite Mineral uses for a Sustainable Future: An industrial perspective-Grahamstown, South Africa	L. Molobi; Reported household electricity-consumption behavior in two medium-sized towns in Eastern Cape, South Africa	K. Jean-Pierre; One-step synthesis of C2-symmetrical and unsymmetrical 1,2-dihydroxyl derivatives as peptodomimetics of HIV-1 protease inhibitors
16:00	F. Akamagwuna; A trait-based Approach to Evaluating and Predicting the Response of Ephemeroptera, Odonata	D.M. Mafukidze; Synthesis and singlet oxygen production by a phthalocyanine when embedded in asymmetric	S. Chikiwa; Exploring the impact of video reflections in developing foundation phase pre-service teachers'

	and Trichoptera Taxa to Elevated Sediment effects in the Tsitsikama and associated Rivers	polymer membranes	mathematical knowledge for teaching
16:15	P. Ntloko; The development of a trait based theoretical template for assessing macroinvertebrates vulnerability to elevated sediments loads in Tsitsa river	D.J. Choruma; Modelling the impacts of fertilizer management on water quality in selected agricultural catchment in South Africa	M.B. Xaba; From land dispossession to land restitution: understanding post-settlement livelywoods of land restitution beneficiaries in Macleantown, Eastern Cape, South Africa
16:30	M. Philips; Role of Amathole Marine Protected Areas in conserving threatened reef fish species	A. Kazerouni; Extending the Life of Reservoirs: Sustainable Sediment Management for Dams and Run-of-River Hydropower	L. Maisiri; The affordance of an anarchist/syndicalist approach to debates around transformation in the Higher Education sector of South Africa is needed
16:45	D. Gwapedza; Sensitivity analysis and regionalization of the soil loss function within a sediment transport model by application to a data-scarce semi-arid catchment	K. Smetherham; Grahamstown's Hidden Resource	J. Danielsen; Democratizing Sustainability
17:00	Welcome Address by the Vice Chancellor: Dr. Sizwe Mabizela		
17:15	Cocktail Function		
TIME	Saturday 30th September 2017		
10:00	Panel Discussion: Professors Samson Khene, Jacqui Akhurst, Eureta Rosenberg and Rosie Dorrington These experienced supervisors and researchers will be sharing their experiences of how postgraduate research at RU contributes to sustainability for tomorrow.		
11:00	Tea		
	Venue 1	Venue 2	Venue 3
11:30	J. Mnjama; Security of Consumer Health Wearables	C. Nkanga; Smart drug vehicles to save antibiotics for future generations: case of liposomes for tuberculosis therapy	M. Ralekhetla; Evaluating the level of epistemic justice during adaptive planning process
11:45	L. Dube; Perceptions of Non-	K. Tshenkeng; Synthesis of	I. Akinloye; Towards

	academic staff on Sexual Violence on Campus: A focus on Grade 1-5 Support Staff at Rhodes University, Grahamstown	carboxylic acid functionilzed phthalocyanines for the electrochemical detection of monoamine neurotransmitters	the Implementation of Sustainable Development Goals in Nigeria: Maximizing the influence of Religious leaders
12:00	J.I.O. Joseph; The Role and Place of Women in Societal Development: A study of Selected Works of Francophone African Authors	L. Sigauke; Interrogation of the Solution Dynamics of Protein targets by Coupling Simulation Dynamics with NMR Observances	M. Weaver; Improving democratic water governance through an interventionist research approach
12:15	L. Bannatyne; A citizen technician based approach to suspend sediment sampling in support of catchment rehabilitation for sustainable rural livelihoods	B. Bobo; A reflective multiple case study approach to understanding partner relationships within the context of community engagement at Rhodes University	O. Lehasa; An Agile Systems Development approach to enhancing e-government adoption (A South African perspective)
12:30	A. Manyani; How urban dwellers identify with natural resources within urban green spaces in the Eastern Cape, South Africa	M.T. Wallace; Reading to learn as panacea towards cognitive development: a case study	B. Resha; Code Switching in Umhlobo Wenene's Zibuzwa Kuthi Current Affairs Programme
12:45	M. Ndlovu; Towards the evelopment of an ecological sponse model (ECOREM) for tegrating biotic response, ater quality, flow and tchment process in South frica	N. Makwetu; Bridging the gap between disadvantaged and advantaged pre-primary schools through the toy library: the case of Grahamstown	M. Machiri; Alignment of local government service delivery communication process and innovative ICTs in resource constrained contexts for citizen engagement
13:00	Light Lunch		
14:00	Making Research Visible: Library Presentation		
	Venue 1	Venue 2	Venue 3
14:20	S. Peteni; Photophysicochemical properties of zinc phthalocyanine derivatives doped to silica nanoparticles	T. Magwenzi; Building a flexible, low cost, Software Defined Network (SDN)	D. Rolens; Leadership development with an LRC in a secondary school in Namibia
14:35	O.J. Achadu; Ascorbic acid detection using fluorescent graphitic carbon nitride	F. Kambarami; Impact of Information Communication (ICTs) on the Post Office: Do postal services have a	D. Chiwandire; Constructions of students with disabilities as a threat

	quantum dots	sustainable future?	to academic excellence at historically White South African universities
14:50	M. Ngoepe; pH responsive drug delivery system for pulmonary delivery of anti-TB drugs	N. Libala; Seep wetland importance and grazing practices-exploring community understanding in South Africa	N. Ngaphu; Translation as a transformative curriculum strategy at Higher Education Institutions
15:05	M.S. Mafa; Enzymatic synthesis of cello-oligosaccharides and alky cellobiosides and the application of the alkyl cellobiosides as antibacterial agents	Q. Mkabile; Mapping and predicting livestock spatial and temporal distributions in the communal rangelands of Cala, Eastern Cape, South Africa	P.S. Mataruse; Ideological Regeneration in Zimbabwe: Itai Dzamara, Occupy Africa Unity Square and the Development of the New Left (2014-2016)
15:20	A.A. Idowu; Stable cobalt octacarboxyphenoxy phthalocyanines thin-film for the detection of epinephrine		W. L. Masudi; Development of plant growth promoting rhizobacterial bio-fertilizer using mixed liquor from high rate algal pond in Makana Municipality
15:50	Think Tank: Sustainability for tomorrow Conference Committee reflect on key themes		

Please watch the noticeboard outside of the BLT (Big Lecture Theatre) for any changes.

Achadu, Ojodomo J

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TITLE: Ascorbic acid detection using fluorescent graphitic carbon nitride quantum dots

ABSTRACT: Ascorbic acid has been a key player in the fight for free-radicals induced disease prevention (as antioxidant in food and beverages) and cancer therapy; hence its sensitive detection is desired for diagnostic and food safety purposes. This work explored the preparation of novel materials such as graphitic carbon nitride quantum dots (gCNQDs) when alone or containing embedded 4-amino-2,2,6,6-tetramethyl(piperidin-1-yl)oxyl) (4-AT) (gCNQDs-4-AT(embedded)) via low temperature in situ one-pot process. The materials were found to be highly fluorescent, sensitive and selective nanosensors for ascorbic acid (AA) detection with limits of detection (LOD) in the nanomolar range. The designed nanosensors were then successfully deployed for real samples (human serum albumin (HSA), vitamin C tablets) quantification of AA with good recoveries, thus confirming the analytical applicability of the materials.

Akamagwuna, Frank

EMAIL: akamagwunafrank@yahoo.com

TITLE: A Trait-based Approach to Evaluating and Predicting the Response of Ephemeroptera, Plecoptera, Odonata and Trichoptera (EPOT) Taxa to Elevated Sediment Effects in the Tsitsa and associated Rivers, Eastern cape, South Africa.

ABSTRACT: An elevated concentration of fine sediments in streams and rivers is one of the most common global water quality challenges affecting all streams and river ecosystems. No biomonitoring tool currently exists for predicting the potential response of macroinvertebrates to elevated sediment concentrations. The trait-based approach holds promise in this regard. This study aims at developing a trait-based predictive model based on the four important taxa; Ephemeroptera, Plecoptera, Odonata and Trichoptera (EPOT) generally deemed sensitive water quality deterioration. Eight sites in the Tsitsa River and its tributaries, representing a gradient of sediment loads, were selected and sampled in terms of water and macroinvertebrates, seasonality between spring 2016 and autumn 2017. Sediment particles sizes were characterized using the Mastersizer3000. A trait-based theoretical template was developed, and on the basis of traits possessed by taxa was classified along a vulnerability gradient a priori. The result revealed that taxa possessing a combination of external gills, filter feeding habit, preferring the stone biotope and propensity for attachment to the substrate were more vulnerable compared to other taxa and therefore were more likely to increasingly reduced in relative abundance along a sediment gradient. The results, therefore, suggest that the use of traits in freshwater biomonitoring has the potential to add diagnostic and predictive value to the existing tools.

Arendse, David

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TITLE: The impacts of market disruptors on established companies

ABSTRACT: When companies fail to correctly respond to innovation or change in their market sectors, the consequences can be severe for their future viability. Christensen and Overdorf argue that innovation is difficult for established firms, because of a fear of change and the perceived negative impacts that could occur as a result. However, looking at the three companies; Blackberry, Apple, Kodak, and plotting their trajectories, it becomes evident that some have succeeded where others have failed. Why is this? What corporate culture needs to exist for change to be effectively identified, managed, and responded to?

Akinloye, Idowu

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TITLE: Towards the Implementation of Sustainable Development Goals in Nigeria: Maximising the Influence of Religious Leaders

ABSTRACT: The limited scope of the Millennium Development Goals and the failure of the programme to achieve its developmental objectives at its expiry in 2015 led to the development and implementation of the Sustainable Development Goals (SDGs) programme that commenced in 2016. The SDGs has been widely accepted as laudable for its wider approach to global development and sustainability. However, if the SDGs are not to end as the Millennium Development Goals did, it is necessary that the implementing actors collaborate with the stakeholders of institutions that will make more members of the populace aware of, accepting of and involved in the implementation of the goals. This is crucial because the goals require the populace' corresponding participation. This paper focuses on one such institutional stakeholder: religious leaders. This paper, through literature review and analysis of surveys and reports, examines the influence religious leaders have on their followers within the Nigerian context. It argues that religious leaders have strong influence on their followers, as Nigerians place more trust in and respect the opinions of their religious leaders than their political counterparts. The paper therefore contends that if the global agenda of the SDGs is to be realised by getting a wider Nigerians to accept and involve in the implementation of the sustainable goals, then, the potential influence of religious leaders should be harnessed.

Bannatyne, Laura

EMAIL: ljforster1@gmail.com

TITLE: A citizen technician based approach to suspended sediment sampling in support of catchment rehabilitation forsustainable rural livelihoods

ABSTRACT: The Tsitsa River catchment near Maclear in the Eastern Cape is severely affected by soil erosion. Large areas are typified by dispersive soils and gullies. Overgrazing and frequent fires may exacerbate the problem, leaving people who are dependent on communal land for their livelihoods more vulnerable to poverty and food insecurity. Community-based land restoration initiatives that will help sustain local livelihoods and create employment are being coordinated by the Department of Environment Affairs National Resource Management programme, under the auspices of the Ntabelanga and Laleni Environmental Infrastructure Programme. These initiatives are given urgency by the proposed construction of the Ntabelanga Dam on the Tsitsa River. Modelled sediment yields of up to 22.5 t/ha·yr at the proposed dam wall site have caused concern that the lifespan of the dam may be significant reduced through siltation. Suspended sediment data were required at sub-catchment scale to support the prioritisation of community-based land rehabilitation initiatives and to determine the relative contributions of sub-catchments to suspended sediment yield at thesite of the proposed dam. Locally resident citizen technicians were employed to collect flood-focused suspended sediment samples from 11 sites on the Tsitsa River and its tributaries using basic equipment and Open Data Kit–enabled smartphones. This presentation outlines the method, benefits and challenges of this citizen technician-based direct sampling approach that has the potential to positively impact on sustainable livelihoods in the upper Tsitsa River catchment.

Baso, Nompumelelo. C

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TITLE: The role of Si in the biological control of aquatic weeds: a case study of water hyacinth

ABSTRACT: Silicon (Si) is not considered an essential nutrient in higher plants since many of them can grow and reproduce successfully under low Si conditions. Nevertheless, this nutrient has been found to be very advantageous to stressed plants, providing protection against a number of biotic and abiotic stresses. In agriculture, Si has been found to deter herbivores and protect crops against pathogens. While Si is important in aquatic plants, not much is known about its role in aquatic plant insect interactions, and therefore consequences for biological control. The aim of this study is to (i) determine the effect of silicon on the vigor of water hyacinth, Eichhornia crassipes (Mart.) Solms-Laub (Pontederiaceae), and (ii) the role of silicon in defense against a suite of biological control agents, namely, Neochetina eichhorniae, Eccritotarsus catarinensis, and Megamelus scutellaris. I hypothesise that in the presence of high water silicon, biological control of water hyacinth is decreased and the rate of this decrease is related to the bio-control agent used. The control agents mentioned above are from different feeding guilds (chewing, xylem and phloem feeding) and they will be used to test this hypothesis. This is an essential investigation in the field of biological control, because high nutrient availability promotes the uptake of Si in plants. Moreover, water hyacinth occurs in the most eutrophic systems in South Africa, and therefore the potential of Si uptake is high.

Bobo, Benita

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TITLE: A reflective multiple case study approach to understanding partner relationships within the context of community engagement at Rhodes University

ABSTRACT: Drawing on the Early Childhood Development (ECD) Residence Program as a case study, my research looks at community engagement at Rhodes University, with an emphasis on the partnership model that the Rhodes University Community Engagement (RUCE) office proposes. This partnership model proposes joint planning, joint execution, and joint evaluation of community engagement projects, with community partners and Rhodes University students. This model also proposes a co-management process between the RUCE office and the community partners. The ECD Residence Programme was piloted in 2016, and currently consists of 15 partnerships that exist between Rhodes University halls of residence and ECD centers from Grahamstown. The programme runs throughout the Rhodes University academic year, and is facilitated by Rhodes University students who are residence Community Engagement (CE) representatives and Managers of Volunteers from the ECD centers. This programme has two processes that run concurrently throughout the year. The first is Siyakhana@Makana (S@M), which is a 19-week project planning process, where Managers of Volunteers and CE representatives work on three identified goals. The second is the Reading Programme, which focuses on school readiness for learners who are 4 and 5-year-olds. This research uses the social action model of Community Psychology in attempting to answer the following research question: what are the students' as well as the partners' experiences of building and managing partner relationships (the co-management of community engagement activities)? Further research questions are: how do students and partners experience jointly planning, executing, and reflecting on community engagement activities, in which they are involved together?

Chikiwa, Samukeliso

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TITLE: Exploring the impact of video reflections in developing foundation phase pre-service teachers' mathematical knowledge for teaching

ABSTRACT: There is concern about poor learner mathematics performance in South Africa which, it is argued, begins from the Foundation Phase. Research has identified contributing sources of the crisis to be the South African mathematics teachers' lack of both content and pedagogical skill to teach mathematics effectively. Ball, Thames and Phelps (2008) refer to the knowledge of both content and pedagogy to teach mathematics as mathematical knowledge for teaching (MKfT). Research attributes the teachers' dearth of MKfT to lack of instructional strategies that link coursework and practice during initial teacher education. Darling-Hammond (2006) suggests that to transform education, teacher educators should aim for tight coherence and integration; extensive, well-supervised clinical experience linked to course work using pedagogies that link theory and practice. Practice based pedagogies create almost seamless experience of learning to teach. This research employs a qualitative case study to explore the impact of video-based reflections as a practice based instructional strategy that would bond theory and practice in a way that enhances MKfT among the

foundation phase pre-service teachers. MKfT framework as proposed by Ball et al. (2008) will be used as both the conceptual and theoretical framework, while Acarvi and Karsenty's (2015) Six Lens Framework (SLF) will be used to guide the pre-service teachers' video-based reflection. Data will be collected using written and audio recorded reflections, questionnaires and semi-structured interviews.

Chiwandire, Desire

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TITLE: Constructions of students with disabilities as a threat to academic excellence at historically White South African universities

ABSTRACT: Background: Following South Africa's first democratic election in 1994, the African National Congress (ANC) government put in place a range of new laws to address the educational and other needs of those disadvantaged under apartheid, including people with disabilities. This resulted in significant increases in the number of students with disabilities (SWDs) enrolling in South African higher education institutions (HEIs). However, the retention and success of these students continues to be a challenge. While a number of studies have offered the perspectives of SWDs with respect to their experiences in South African higher education, few have focused on Disability Unit Staff Members (DUSMs) who are pivotal to ensuring fair and equitable policies and practices for SWDs in HEIs. Method: In-depth qualitative interviews with 28 DUSMs based at 10 different universities in four of South Africa's nine provinces. Initial coding of these interviews revealed commonalities in the way in which DUSMs based at historically white universities (HWUs) constructed SWDs and in how they framed the challenges faced by these students. The data was therefore disaggregated and the interviews with the 17 DUSMs based at five HWUs analysed separately from the larger data set. Results: DUSMs at HWUs invoked various versions of a discourse of academic excellence as part of the way in which the understood their universities' essential identities. SWDs were in turn constructed as a threat to this excellence, -- deficient and inherently incapable of fully embodying excellence. Conclusions: DUSMs at South Africa's HWUs, who are tasked with advancing the rights of SWDs often perpetuate medicalised understanding of disability which frames disability as an individual deficit requiring, as far as possible, normalising and adaptation on the part of the individual to the demands of existing institutional practices and expectations. In this way, the state's purported commitment to inclusive education is being undone by a discourse of excellence which masquerades as neutral and uncontroversial. Keywords: historically white South African universities; academic excellence discourse, Disability Unit Staff Members, students with disabilities, othering, inclusive education.

Choruma, Dennis. J

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TITLE: Modelling the impacts of fertilizer management on water quality in a selected agricultural catchment in South Africa

ABSTRACT: In recent years, fertilizer use in the form of Nitrogen and Phosphorus has increased and excessive fertilizer use become common. In South Africa, modern agricultural systems depend on inputs such as fertilizers and pesticides to increase crop yields. When managed properly fertilizer application can increase crop yields. However, inefficient use of fertilizers can lead to eutrophication and algal blooms in important water sources. Optimising the use of nitrogen and phosphorus can both increase farm productivity and help meet environmental standards for water quality. In order to achieve both objectives and link land management practices to water quality, an understanding of the pathways of nutrient movement from land to water is required. The main objective of the study will be to find nutrient management options for water pollution abatement by using computer models. In this study, the Environmental Productivity Impact Climate Model (EPIC) will be used to simulate nitrogen and phosphorus dynamics at the field scale for a selected South African catchment. The calibrated model will then be used to evaluate the long-term effects of different nutrient management practices on water quality and crop productivity. The knowledge gained from this study can be used to inform policy and decision makers on sustainable fertilizer management options for maximizing crop yields and reducing the impacts of agricultural fertilizer use on water quality. Understanding current practices and the impacts of different land management practices on future water quality and crop yields scenarios is fundamental to developing sustainable land and water management plans.

Danielsen, James

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TITLE: Democratizing Sustainability

ABSTRACT: I consider a global fee-and-dividend Tobin tax, whereby a small tax of between 0.1% and 0.5% levied on all international financial activity – trades in currencies, bonds, shares and derivatives – would generate approximately $700 billion per annum. Instead of the tax accruing to governments, however, it would be distributed – for subsequent allocation – directly and equally to all global citizens. Based on a participatory budgeting model, each global citizen would then choose how to allocate the money, by, for example, investing in local infrastructure, by donating to charities, or by subsidising global renewable energy projects. By means of a survey conducted by YouGov in the UK (n=2133), I asked citizens how they would allocate their dividend across ten possible projects: solar energy and insulation for their home; local agricultural initiatives; community-owned energy systems; local, national, or international charities; the UN operational and peacekeeping budget; global clean energy; global eradication of poverty; and global environmental protection. The data indicates remarkable uniformity – across regions, political orientation, social grades, and level of education – in how citizens would distribute the dividend. The data indicates that – if the populations of OECD countries and the world as a whole were to distribute the dividend in similar proportions, and especially in combination with matching finance and low interest rates – then it might become possible to democratize sustainability; i.e. empower communities to deploy sustainable infrastructure and implement sustainable practices directly.

Dube, Lethubuhle

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TITLE: Perceptions of Non-academic Staff on Sexual Violence on Campus: A focus on Grade 1-5 Support Staff at Rhodes University, Grahamstown.

ABSTRACT: South Africa is infamously known as the rape capital of the world, therefore this means South African universities are no exception. Recently Rhodes University has had to confront the magnitude of sexual violence against mainly female students and this has exposed and re-emphasised the importance of and the urgency of addressing university cultures of hegemonic masculinity that sometimes allows sexual abuse to occur. Because of their elitist and conservative nature, universities tend to be one of the spaces where 'unequal citizenship' is played out. University cultures therefore tend to give 'voice' to the dominant groups. In this study, I use the concept of citizenship to understand the perceptions of non-academic staff members on sexual violence in a university context. This study attempts to position non-academic staff beyond their worker identity but as citizens of the university as the university tends to define the position and voice of the non-academic staff members as 'subjects' rather than as citizens. In-depth interviews with thirty non-academic staff members between grade 1-5, Trade Union Officials (NEHAWU) that represent this group of workers and managers of relevant sections that work with this group of workers were conducted, as well as three focus group discussions to provide a space for the workers to share their views in a collective manner. Support staff are perpetuating myths regarding sexual violence, and have faulty labelling of the victim. The support staff requests a relationship between the students, the institution and themselves as far as being involved in protests and policy-making around sexual violence on campus. While the support staff themselves are not aware of support programmes offered by the institution, collectively or individually, the shop stewards report that the university offers educational programmes. The support staff are much more second-class citizens in the campus.

Durr, Sarah. J

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TITLE: Investigating how a farmer-buyer based mobile application can enable social learning to stimulate value creation towards a circular economy?

ABSTRACT: The existence of excessive food surplus in countries where food insecurity is a major challenge, has become a great area of national and international concern. In South Africa one third of the food produced for consumption is wasted, whilst 26% of all households are experiencing hunger (von Bormann, 2017). South Africa's surplus challenge also includes small emerging farmers who aren't able to find alternative markets which results in their food being spoiled. The Food For Us project, which is being funded by the 10 YFP programme, aims to develop a mobile application, which will be trialed by 40 participants, to address challenges of food surplus at production level in the Western and Eastern Cape by linking producers with potential alternative consumers. Situated within this wide research programme, my M.Ed research project will investigate how the Food for Us mobile application potentially enables social learning through the particular application affordances across a landscapes of practice involving selected producers and consumers. This social learning will be analysed through Wenger et al. (2011)'s Value Creation Framework which defines different cycles of value that is created through varying activities over time. Through tracking and capturing the value creation narratives of 6 Food For Us trial

participants using document analysis, interviews, observations and use of application meta-data, I hope to uncover, in my study, how value created potentially translates into achieving the over-arching aim of the project - which is to contribute towards a community based circular economy where surplus is redistributed, instead of wasted. This presentation will introduce the project, its contextual background and the methods which will be used to understand the social learning and value creation.

Gwapedza, David

EMAIL: davidgwapedza@gmail.com

TITLE: Sensitivity analysis and regionalisation of the soil loss function within a sediment transport model by application to a data-scarce semi-arid catchment.

ABSTRACT: The estimation of soil erosion and sediment transport is important for effective management of catchments. A model for semi-arid catchments in southern Africa has been developed; however, simplification of the model parameters and further testing are required. Soil loss is calculated through the Modified Universal Soil Loss Equation (MUSLE). The aims of the current study were to: 1) perform a sensitivity analysis and regionalisation of the erodibility parameters and; 2) validate the soil loss outputs against independently estimated measures. The regionalisation was developed using GIS coverages. The model was applied to a high erosion region in the Eastern Cape, South Africa. Sensitivity analysis indicated model outputs to be more sensitive to the vegetation cover parameter. Erosion estimates were within the range of estimates by previous studies. The outcome of the present research is a framework for parameter estimation for the MUSLE through regionalisation. This is part of the ongoing development of a model which can estimate soil loss and sediment delivery at broad spatial and temporal scales.

Idowu, Adewumi-Idowu. A

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TITLE: Stable cobalt octacarboxyphenoxyphthalocyanines thin-film for the detection of epinephrine

ABSTRACT: Chemical modified electrodes still continue to attract research internationally in the design of electrochemical sensors [1]. Chemical reactions that allow for stable gold thin films to form are of interest. The recent chemical strategies, based-on electrochemical grafting, thus allowing for stable carbide (gold-carbon) bond have been employed [2]. In this work, the modification of gold electrode with cobalt octacarboxyphenoxyphthalocyanines (CoOCPhOPc) bearing ionizable functional groups for the detection of epinephrine (neurotransmitter) in the presence of interferents was investigated. The pH conditions were used as the medium for inducing the charge on the thin film and thus screening off of interferents. The modified Au-PDD-CoOCPhOPc exhibited good selectivity towards epinephrine. Low limit of detection (LOD) of 0.27 nM at 3σ, limit of quantitation (LOQ) of 0.9 nM at 10 σ. The reusability, stability, and reproducibility of the electrode were confirmed for the detection with repeat cyclic voltammetry (CV). The calibration curves showed very good and strong positive linear relationship with the correlation coefficient (R2) of +0.9962.

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TITLE: The Role and Place of Women in Societal Development: A Study of Selected Works of Francophone African Authors.

ABSTRACT: This paper intends to examine the role and place of women in tomorrow's society. Over the years, the African woman has been oppressed, marginalized and humiliated. She is expected to be seen and not heard, which limits her ability to play a major role in the society. The inferior status of the woman has been the main subject of depictions in most of the literary writings by both male and female authors interested in the fight against gender imbalance in African tradition. These authors include Mariama Bâ, Adelaïde Fassinou, Ramonu Sanusi and Baboni Azaratou These prolific authors have written topics that affect the conditions of women in the twenty-first century such as polygamy, single motherhood, female genital mutilation, unwanted pregnancy, abortion and sterility. This study intends to explore how the inferior status of women has already been the object of several criticisms and will no longer have its place in tomorrow's world. Through Molara Leslie Ogundipe's stiwanist theory (1994) which advocates for a social transformation including women of Africa, it will be a question of shedding light on the woman and it's place in the transformation of tomorrow's society. On the basis of the selected authors and their works, the stiwanist theory will be applied to show how the combined efforts of men and women in a society based on gender equality can accelerate development in all aspects of society and the reading of these novels, will serve as a basis for showing that stiwanism is the theory of development.

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TITLE: Impact of Information Communication (ICT) on the Post Office: Do postal services have a sustainable future?

ABSTRACT: Information Communication Technologies (ICTs) are being recognised as key sources for economic growth and social prosperity in both developed and developing economies. The digital age is perceived as the 'new economy' where innovative ideas can be developed to spearhead economic development such as e-commerce. Whilst ICTs seem to bring insurmountable opportunities to individuals and businesses, the impact of technology on postal organisations particularly in developing economies seems to be adverse. Globally postal services have been experiencing declining mail volumes as customers opt for instant communication services as opposed to the postal 'snail mail'. This study is based on a review of literature on the impact of ICTs on public postal operators. Six postal organisations in both developed and developing countries were selected for the study using purposive sampling. In addition, the study explored the opportunities that have also been fostered by the advent of ICTs within the postal sector. Based on the review of literature, it can be argued that public postal operators particularly in developing countries have experienced more of constraints than opportunities due to the impact of ICTs on their operations.

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TITLE: One-step synthesis of C2-symmetrical and unsymmetrical 1,2-dihydroxy derivatives as peptidomimetics of HIV-1 protease inhibitors

ABSTRACT: HIV-1 protease (HIV-1PR) is a retroviral aspartyl PR, crucial for the life cycle of HIV, the retrovirus causing AIDS.1,2 It consists of two symmetric subunits, made of 99 amino acids with a single active site. It cleaves new polypeptides into mature infectious HIV virion3-4, thus making its inhibition an important target for anti-AIDS drugs discovery.3-5 Current protease inhibitors (PRIns) targets/block the active site of HIV-1 PR by acting as transition state analogues, modifying the peptide scaffold into peptidomimetics components. 3-4 However, resistance to current therapies has arisen as serious shortcoming, therefor the urgent need for novel analogues.5 An easy access to both C2-symmetrical and unsymmetrical 1,2-dihydroxy compounds as peptidomimetics of HIV-1 protease through a one-step synthesis via the uncatalyzed direct amidation of non-expensive and chiral carbohydrate as well as a preliminary bioassay study are described. In silico docking studies showed potential binding interactions between some of the products and proximal amino acid residues in the HIV-1 protease (PDB: 1HXW) receptor. In vitro bioassays showed.

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TITLE: Development and validation of impedimetric biosensor to detect tumour-associated autoantibodies for early stage diagnosis of lung cancer

ABSTRACT: Genomic alterations in the p53-tumor suppressor gene and overexpression of serum level of p53 autoantibodies have been recognized as a potential biomarker in the early-stage diagnosis of cancer [1-2]. A label-free electrochemical impedance immunosensor for ultrasensitive and selective detection of p53 autoantibodies is reported. The p53 protein was covalently immobilized onto layer-by-layer self-assembly of ethanedithiol (EtDT), gold nanoparticle (AuNP), and 3-mercapto propionic (MPA) modified gold electrode via carbodiimide coupling reaction using N-(3-dimethylamino-propyl)-N-ethyl-carbodiimide (EDC) and N-hydroxysuccinimide (NHS). The immunosensor (p53-Ag/MPA/GNP-EtDT/Au) was characterized by electrochemical and microscopic techniques. The result showed an increase in charge transfer resistance after the p53 antibody bind with the p53 protein immobilized onto the electrode surface in the presence of [Fe(CN)6]3-/4- as redox probe. The immunosensor was used to detect p53 antibody in aqueous solution in the range 5 - 100 ng. The gold nanoparticles enhanced the detection sensitivity due to increased surface area for p53 protein immobilization and promotion of charge transfer to the electrode surface. This biosensor shows great potential use for early-stage detection of cancer-specific autoantibodies.

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TITLE: Extending the Life of Reservoirs: Sustainable Sediment Management for Dams and Run-of-River Hydropower- South Africa Perspective

ABSTRACT: Economic development in South Africa relies critically on infrastructure development. Yet, without careful planning, the services provided by hydropower facilities and dams are at risk. Ensuring the long-term resilience of these critical infrastructure facilities requires early and consistent attention to the processes of reservoir sedimentation, which reduce the storage capacity of reservoirs and damages hydromechanical equipment, posing a threat to the sustainability of hydropower, water supply, and irrigation services. Sustainable Sediment Management for Dams and Run-of-River Hydropower provides adopting of sediment management practices for hydropower and dam projects. It stresses the importance of incorporating sediment management into projects in order to safeguard the many important services of these projects, including water supply, irrigation, and renewable electricity. In particular, the research stresses the importance of integrating sediment management into the early planning phases of projects.

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TITLE: The identification of natural compounds against the plasmodium GTP CycloHydrolase I (GTPCHI) enzyme

ABSTRACT: Malaria is a disease that is caused by parasitic protozoans. There are 200 and 500 million cases of malaria infection reported each year. Of these cases, around 1.7 to 3 million results in death. Malaria is found to have the most severe impact in countries with few resources. This is particularly true in Sub-Saharan countries were the victims are mostly children (Bray, Garnham 1982). The vector responsible for malarial transmission is the female anopheles mosquito. The female anopheles mosquitoes are able to transmit malaria to humans through infection with parasites of the genus Plasmodium. There are currently five species within the Plasmodium genus known to cause infection. These species are; Plasmodium falciparum, Plasmodium Ovale, Plasmodium knowlesi, Plasmodium vivax, Plasmodium malariae. There are also two malarial models used to study the effects of Plasmodium genus in vivo, these are; Plasmodium berghei and Plasmodium chabaudi. The Plasmodium species which has demonstrated the highest capacity to cause death is the Plasmodium falciparum (P. falciparum) species (Gardner et al. 2002). There are currently numerous methods for the treatment of malaria. The primary method used for malarial treatment is the use curative chemotherapy. This is attributed to numerous factors such as; Government regulations, the absence of an approved vaccine, increased cost of insecticides, as well as the resistance of the anopheles mosquitos to the insecticides. As a result, the need for the development of new antimalarial treatment strategies and the identification of alternative metabolic targets for the treatment of malaria is important. The emergence and spread of parasites which are resistant to antimalarial drugs has resulted in the need to identify alternative drug targets (Olliaro, Yuthavong 1999). The exploitation of biological pathways is often important for the treatment of diseases. In the case of malaria, there have been numerous biological pathways that have been exploited for the treatment of this disease. The folate pathway has been demonstrated to be a particularly important pathway for parasite survival. The folate pathway is considered to be a good target for both the treatment and

prophylaxis of malaria (Hyde 2005). In all Plasmodium species folate is obtained from two sources. In the first source, termed de novo, folate is synthesized and provides the primary source of folate for the Plasmodium genus. The second source of folate is the exogenous folate salvage pathway where folate is taken up from the surrounding environment. The de novo synthesis of folates provides cofactors which generate the activated one carbon carrier molecule tetrahydrofolate. Tetrahydrofolate is then used for the synthesis of amino acids and nucleotides (Olliaro, Yuthavong 1999).

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TITLE: An Agile Systems Development approach to enhancing e-government adoption (A South African perspective)

ABSTRACT: More than half of the e-government projects in developing countries fail completely or partially. E-Government projects are government IT projects, which are aimed at developing an ICT-enabled system for improving public service delivery, information dissemination, and public participation. This failure of e-government projects can be attributed to low user adoption or acceptance, among other factors. Low e-government user adoption is as a result of e-government systems which are developed without adequate user engagement. e-Government system developers need to increase their focus on engaging users during the development of e-government systems, to improve user acceptance, adoption, or buy-in, and ultimately the success of e-government projects. The significance of this research is that it aims to propose a solution to e-government user adoption, through User Engagement guidelines which will have a positive impact on e-government adoption. Therefore, this study will contribute towards addressing the bigger issue of e-government project failure, which hinders efficient government service delivery. A Multiple Qualitative Case Study approach will be adopted. This will entail interviewing Agile systems development experts and Project Managers from multiple e-government projects. The participants will be presented with a set of guidelines (extracted from literature) and required to comment on the applicability and potential challenges of each guideline, from an e-government perspective. Therefore, the expected findings will consist of data from each e-government case, which will authenticate or add to the existing list of e-government User Engagement guidelines.

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TITLE: Seep wetland importance and grazing practices –exploring community understanding in South Africa

ABSTRACT: In South Africa, ecosystem services, particularly in rural areas, are increasingly being subjected to enormous pressure as the demand for social and economic development come into tension with environmental sustainability. Human activities continue to alter the environment on local and global scales, and these alterations are leading to changes in ecosystem structure and function, as well as the composition of biotic communities. Wetland seeps are critical and fragile ecosystems, capable of suppling

ecosystem services such as biomass production for grazing. In the upper Tsitsa River catchment, seeps are among the critical wetland ecosystems that supply biomass for grazing throughout the year. In the absence of appropriate management strategies within communities and a lack of scientific understanding of the functionality of these ecosystems in terms of their biodiversity-ecosystem functioning, they are disappearing at an increasing rate within the catchment. This study sought to engage with key stakeholder within the community to elicit information regarding their understanding of seep ecosystems. Three communities that are surrounded by seep wetlands were selected in this study, in each community; a total 15 household interviews were conducted for a baseline information survey including human demography, livestock types, importance of seep wetland as ecosystem for livestock grazing, condition of seep wetlands, possible solutions for seep protection as well as the willingness of local people to join Catchment Management Forum. Keywords: Ecosystem services, local knowledge, Ecosystem functioning, livestock grazing.

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TITLE: Non-linear behaviour of Alpha and Beta Substituted Tin(IV) Pthalocyanines

ABSTRACT: The ability of symmetrically similar phthalocyanine isomers to exhibit non-linear optical behavior: The properties that comprise the effecting phenomena such as two photon absorption, singlet and triplet state absorption will be discussed. The factors that can inhibit or promote the non- linear properties will also be examined.

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TITLE: Alignment of local government service delivery communication processes and innovative ICTs in resource constrained contexts for citizen engagement: A case study of Makana Municipality.

ABSTRACT: The effective management of local municipalities in South Africa determines the quality of service delivery to citizens. Service delivery refers to the supply of basic human needs and services to the community by the local government. These are also areas that if not effectively managed will lead to a decrease in standards of living and therefore are crucial to human existence. Policies and other legislation have been implemented in order to try to improve service delivery backlogs in South Africa. However, these have not been effective in meeting community needs hence leading to increases in service delivery protests against self-serving, and corrupt leaders of municipalities. These problems are partly linked to the lack of communication between government and citizens and within the government organisation itself. Effective communication helps in improving public participation and information flow, both internally and externally. Citizen engagement is an important tool in local government that helps in facilitating and achieving accountability and empowering citizens. There is a need for sustainable solutions in improving citizen engagement for better service delivery, such as, implementing innovative ICTs that assist in facilitating communication between the government and its citizens to support citizen participation. This research aims to develop a guiding framework to support the alignment of a municipal communication processes with innovative ICTS to support ongoing social accountability and transparency

through citizen engagement in local municipalities. This will be done using a pragmatic philosophy as the research related to change and action and how knowledge relates to the action.

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TITLE: Enzymatic Synthesis of cello-oligosaccharides and alkyl cellobiosides and the application of thealkyl cellobiosides as antibacterial agents

ABSTRACT: The aim of the current study was to investigate the GH5D transglycosylation activity and its ability to produce cello-oligosaccharides and alkyl cellobiosides. Protein Interactive Modeling was used to model GH5D proteins structure using homologous of GH5D as a template. One template was selected from 13 hits that were retrieved from protein data bank (PDB) and had 33% peptide sequence identity to that of GH5D with coverage of 85% and the resolution was 2.15. The template used was a Clostridium thermocellum endoglucanase CelC (with a PDB ID: 1CEC). The protein structure of the 1CEC and modeled GH5D folded into an (alpha/beta)8 barrel, with a deep active-site cleft forming a tunnel like structure. Proteins with these features are reported to have transglycosylation ability. GH5D transglycosylation assays were performed at 37 ^{0}C for 1 h in the case of alkyl cellobiosides or 12 h in the case of cello-oligosaccharides. To synthesise the alkyl cellobiosides the p-Nitrophenyl-cellobioside, 50 mM sodium-citrate buffer (pH5.5), alcohol (methanol, ethanol or propanol) and 10 µg GH5D were mixed and incubated at 37 ^{0}C. The same conditions were used for cello-oligosaccharides synthesis, except that cellobiose was used as a substrate. The thin layer chromatography and high-pressure liquid chromatography results showed GH5D was able to synthesise cello-oligosaccharides and alkyl cellobioside. Lastly, the alkyl cellobioside showed antibacterial properties by inhibiting the growth of Bacillus subtilis and Klebsiella.

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TITLE: Synthesis and singlet oxygen production by a phthalocyanine when embedded in asymmetric polymer membranes

ABSTRACT: 2(3),9(10),16(17),23(24)-Tetrakis-(4-aminophenoxy)phthalocyaninato indium (III) chloride (ClInTAPPc, 3) was first linked to two different polymers: polystyrene (PS) and polyacrylonitrile (PAN) to form 3-PS and 3-PAN. The hybrids were cast into the corresponding polymers to form membranes represented as 3-PS-membrane and 3-PAN-membrane, respectively. The prepared membranes were characterized using various techniques including scanning electron microscopy and solid-state UV/Vis spectroscopy. The amounts of reactive oxygen species generated were higher for the 3-PS-membrane at 51 % compared to 3-PAN-membrane at 35 %. The larger amounts of reactive oxygen species also apply to 3-PS (0.63) compared to 3-PAN (0.38) when in solution, while ClInTAPPc alone produced 43 %. The prepared membranes show great potential in their intended possible application as photoactive filtration membranes for water treatment.

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TITLE: Building a flexible, low cost, Software Defined Network (SDN)

ABSTRACT: In today's modern networks, usage and demand for bandwidth and good quality of service (QoS) are growing fast. To meet these requirements, there is a need for a fundamental re-thinking of the classical networking model. In traditional networks, devices use sets of rules that are stored within them to determine the next destination of a message and the path the message must traverse to get there; a process called switching. Low-level switching processes make it difficult to automate decisions that honour high-level goals such as QoS contracts and business policies. Furthermore, the decision-making process (control plane) and actions that the devices must take to forward information (data plane) is stored on network devices, of which there may be hundreds. Software Defined Networking (SDN) is a new approach that simplifies the network architecture by supporting the development of applications that interface with an intelligent controller that manages end devices. The goal of the research is to set up a prototype small-scale SDN network using open source software and inexpensive hardware. In particular, the hardware solution will be based on manipulating configurable logic blocks of an FPGA (Field Programmable Gate Array). It is anticipated that the solution will deliver several benefits, including reducing the cost of network devices used for research, support the development of applications that can access multiple hardware devices, and also delivering a more autonomous and flexible system for network applications than is realisable in existing setups.

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TITLE: The affordance of an anarchist/syndicalist approach to the debates around transformation in the Higher Education sector of South Africa is needed.

ABSTRACT: It's been over two decades since the end of Apartheid and South Africa finds itself still developing along the set legacy of Apartheid. Added to that the university spaces find themselves suffering from a colonial hangover and this is all compounded by the fact that there is a tightened grip of the neoliberal policies signed in 1996 by the new black elites that require Universities to treat education as a private commodity. This paper argues that the gap between wanting to transform and actual meaningful transformation is caused by a lack of coherent class analysis that places capital and class an equal problem as the race question. Therefore, the paper adopted ananarchist/syndicalist approach largely because anarchism as a movement is against hierarchy and is against exploitation. As such it links the struggle of individual freedom to the struggle against capitalism and the state. This theoretical position has enabled a critique of a range of other forms of domination that have not yet entered the decolonization debate. The paper found that the anarchist/syndicalist approach offered a more holistic solution and on the ground strategy around the issue of transformation in high education bridging the gap between abstract theory and praxis. This will contribute to how we understand transformation advocating for a working class based strategies to transform our universities and equally important society at large.

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TITLE: Bridging the gap between disadvantaged and advantage pre-primary schools through the toy library: the case of Grahamstown.

ABSTRACT: Toys and books are an integral part in early childhood development. Much of how children develop and think is formed through the educational support they have received, therefore the lack of adequate and age appropriate exposure to toys and book hinders the development of a child. This paper argues that in order to secure healthy developmental paths for all children there has to be an investment from birth right up to the end of foundation phase in pedagogy administered through play. This paper using in-depth qualitative research method, looked at the staff at St Mary's toy library based in Grahamstown, together with the parents, teachers, and the staff of Eyethu. The study found that there was an undeniable importance in supporting children through an asset based approach where the community; parents, teachers, NGO's all play a part in developing a holistic approach in stimulating learning.

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TITLE: How urban dwellers identify with natural elements within urban green spaces in the Eastern Cape, South Africa?

ABSTRACT: Green spaces contain various elements which play a crucial role in supporting urban ecological and social systems. The various natural and artificial elements contained in public urban green spaces are key contributors to the quality of life and well-being of urban dwellers. Yet, this has been largely ignored in urban design in South Africa, especially in the poorer township and RDP areas. Within the individual and community plots in poorer townships, the provision of green spaces and trees is well below world standards, and much less than what is available in the more affluent areas of South African towns. Additionally, most research on the links between nature and human well-being comes from developed world contexts which assume a particular westernised view of the relationship. Yet, in many societies of the global South, including in South Africa, worldviews and experiences of nature in green spaces and use of natural elements takes on different meanings to those of the global North. A household survey of 360 interviews conducted in the Eastern Cape by targeting green space users and those households within a 100metres from the green space were done. Results indicated that low maintenance and high criminal activities were the main factors deferring people from visiting these spaces. Nevertheless, a high percentage of respondents showed attachment to these places as their children had open places close by for them to play. The South African specific context in green space utilisation, perception and people's preferences is thus crucial for urban planning and sustainability.

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TITLE: Production, purification and characterisation of an acidic protease from Oididendron maius for recovery of silver from X-ray films

ABSTRACT: This study focused on mthe production, partial purification and characterisation of acidic proteases from an ericoid fungus, Oidiodendron maius (CafRu028b strain). Partial purification of the extracellular culture was achieved by acetone precipitation, followed by size exclusion using centrifugal filters. The m molecular weight of the enzyme was determined using zymography as well as SDS PAGE and was found to be approximately 36 kDa. The optimum pH of the enzyme was found to be pH 3, however, the enzyme was also observed to be highly active at pH 7. The protease was highly specific towards gelatin with specific activity of 2706.87 units/mg and a Km of 4 mg/ml showing a high affinity for the substrate. As a result of its specificity towards gelatin, the protease was used to recover silver from X-ray films. This was made possible by degradation of the gelatin linking silver in the X-ray film's emulsion layer. This alternative method of recovering silver is more cost effective, and leaves the film intact for recycling, thus causing less pollution compared to present methods of incineration. The acidic protease from O. maius proved to be an efficient enzyme with respect to silver recovery, with a protein concentration of 0,1 mg/ml completely removing silver from 1g of X-ray film within 16 hrs.

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TITLE: A thermo- and acido/alkaline-stable xylanase from Thermomyces lanuginosus VAPS24: Purification, characterization and implications for its biotechnological application

ABSTRACT: An endo-β-1,4-xylanase, XynA, from Thermomyces lanuginosus VAPS24 was purified to homogeneity. The molecular mass of XynA was approximately 20 kDa as determined by SDS-PAGE. The optimal pH and temperature for hydrolysis of xylan was pH 7.0 and 60°C, respectively. The enzyme was stable and retained more than 80% of its activity over a broad pH range (4–9) and more than 90% of its activity at a temperature range of 30-50°C. XynA exhibited high activity on wheat flour arabinoxylan and beechwood xylan, minimal activity on arabinogalactan and glucomannan, and no activity on Avicel, CMC and pNP derivatives. XynA hydrolysed xylooligosaccharides with a DP3 to mainly xylobiose and xylotriose. The apparent Km values for XynA on beechwood xylan and wheat flour arabinoxylan were approximately 5 and 11.5 mg/mL, respectively. The catalytic efficiency (kcat/Km) values of the xylanase on beechwood xylan and wheat flour arabinoxylan were approximately 564.46 and 410.20 mL mg−1 min−1, respectively. The enzyme was notably quite tolerant to many chemical reagents and metal ions, and lignocellulosic biomass pre-treatment by-products. The acido/alkaline and thermostable xylanase is therefore an attractive candidate for application in the biofuel and fine chemical industry for high-temperature processes for the degradation of xylans.

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TITLE: Ideological Regeneration in Zimbabwe: Itai Dzamara, Occupy Africa Unity Square and the Development of the New Left (2014- 2016).

ABSTRACT: This paper takes seriously the indivisibility of thought and struggle in alternative ways of thinking and doing politics in Zimbabwe. This is achieved through methodologies of situated solidarities and interviews. It brings to the fore ideas of Itai Dzamara and the movement that began around him, called Occupy Africa Unity Square showing how it represented a new quest for a better politics that refused to be classed, nationalized, formalized and moneyed. This way one is able to understand the 2016 protests in Zimbabwe from an ideological point. The study reveals a quest to revive organic activism, outside formalist and statist structures perceived to have a hegemonic tendency to sabotage new areas of dissent and equality. The abduction of Itai Dzamara gave impetus to the ideas he spawned when he decided to sit in a park to question a dictatorial regime. A new generations thinking and bravery to act outside the political culture extended and tested the limits of European Marxism, social democracy, donor funded civil society and essentialist notions of nationalism. The youth movement dramatized deep difference in Zimbabwe from sites of political organization, ideology, class and race. In an environment of epistemic repression, a search for a theory that was thinking for the purposes of acting failed to find answers in both deliberative and agonistic theory. It became part of social movements arguing that politics need not to be always about representation but about everyone's active participation. Occupation of space became a trenchant critique of power and being.

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TITLE: Mapping and predicting livestock spatial and temporal distributions in the communal rangelands of Cala, Eastern Cape, South Africa

ABSTRACT: Rangelands in communal lands, particularly in the former Transkei which now forms part of the Eastern Cape, have been utilized for crop production and livestock farming for many years. Reports from the 1980s show evidence of land degradation; potentially caused by extensive crop production and livestock farming. There has been little knowledge about whether the rangelands are still productive and provide socio-ecological services such as grazing material for livestock in the communal area up to date. This study aims to (1) identify and map the distribution of livestock and (2) predict the distribution of livestock based on influential landscape variables in the rural rangelands. We address three research questions: (1) where do livestock spend time? (2) Do hillslope seeps receive grazing attention from livestock? (3) What management strategies can be implemented? The study examines the distribution of locally selected livestock using GPS collars and GIS to identify the influential landscape variables and predict suitable unknown areas which are potential utilisation sites. The study was conducted in the rural area, Dike of Cala, Eastern Cape. Preliminary results show that the distribution is mostly based on the homesteads and around water sources. With interventions from government and conservation managers, the research will benefit the local community members and the surrounding ecological infrastructure by providing knowledge about the distribution of livestock and areas that are potentially overused and underused therein. This permits the Implementation of rotational grazing to maintain sustainable rangeland management

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TITLE: Security of Consumer Health Wearables

ABSTRACT: Technology in health care has led to the development of consumer health devices that assist in measuring aspects of a person's daily life at a low cost. These consumer health devices also known as fitness trackers are capable of collecting personal health data readings such as body temperature, heart rate or the number of steps taken. Through this, an individual may understand how to improve their physical wellness continuously. One of the challenges hindering the growth of consumer health wearables are the issues of privacy and security. This is so, as health data is identified to be one of the highly sought after data by cyber criminals. This research presentation will, therefore, outline the security issues relating to consumer health wearables discovered from literature and empirical evidence. A theoretical threat assessment framework will also be outlined which can be used by developers of consumer health devices. This framework will assist developers to identify possible threats that affect consumer health devices and thus better protect consumer health data. The overarching methodology used in this research study is the Design Science Research Methodology. This methodology is well established within the field of Information Systems and aims to produce artefacts that can be used in real world situations. This is well situated for this research study as the artefact that was produced is a theoretical artefact (Consumer Health Wearable Threat Assessment Framework) that can be used by developers to identify potential threat elements that may affect consumer health wearables and their associated applications.

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TITLE: Reported household electricity-consumption behaviour in two medium-sized towns in the Eastern Cape, South Africa

ABSTRACT: Resource consumption is one of the leading causes of environmental problems. With a consumption rate of almost 20% of the national energy demand, South African households are increasingly becoming major consumers of electricity and, therefore prominent role-players in the country's energy debate. Despite improved access to energy in South Africa, low income households remain energy insecure. As such, there has been a growing call for promoting more efficient electricity-use behaviour in the residential sector as a possible pathway towards environmental and financial sustainability. However, interventions that are not informed by an understanding of electricity-use behaviour and the factors affecting it may not yield the desired outcomes. Using questionnaires, this study examines reported electricity-use behaviour across 130 households in low and middle-income areas in the towns of Port Alfred and Grahamstown in the Eastern Cape. The findings show a significant difference in reported electricity-use behaviour between the low and middle-income groups. There were no significant relationships found between socio-demographic factors and electricity-use behaviour. Different positive and negative relationships were found between personal values (such as environmental quality and social status) and electricity-use behaviour in the different income groups and in the entire sample group. Therefore, in order to address electricity conservation issues in South African households, awareness needs to be increased (possibly through intervention measures). Intervention measures need to be tailored to fit different South African household contexts. In order to increase the likelihood of the conservation of electricity, interventions should focus on the financial benefits of electricity conservation.

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TITLE: Towards the development of an ecological response model (ECOREM) for integrating biotic response, water quality, flow and catchment processes in South Africa

ABSTRACT: South Africa is one of few countries that have made legal establishment for balancing the efficient use and protection of water resources in terms of quality, quantity, riparian condition, as well as biological assemblages and overall ecosystem. South Africa has developed methods and processes for assessing water resources. These are Resource Directed Measures – resource classification, Source directed measures, determination of the ecological Reserve and Resource Quality Objectives (RQOs).The Department of Water and Sanitation (DWS) and water resources practitioners apply these methods by routinely measuring flow, collecting biological, physico-chemical and habitat and hydraulics characteristic data, which are then interpreted in terms of the ecostatus and health of the water resources for water resource assessment and planning. In this study, the ECOREM identify probable ecological responses to a range of potential future changing conditions related to streamflow and important secondary factors affecting the river systems. Buffalo River catchment was selected as a study area. The primary focus of the project is on the impact of human induced activities that alter behavioural, morphological and biological traits of macro invertebrates, particularly urbanisation, agriculture and wastewater treatment works. On model implementation, all available macroinvertebrate taxonomic and traits data, along with the set of environmental data where they are found (flow, water quality, habitat, land use etc.) within South Africa were obtained from DWS website. For model validation, 5 sites were selected in the Buffalo River catchment, in order to compare predicted and actual datasets.

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TITLE: Translation as a transformative curriculum strategy at Higher Education Institutions

ABSTRACT: This research tries to explore how the translation of main academic texts from English to isiXhosa can help to increase the number of academic texts available in isiXhosa at higher education institutions, looking specifically at the context of Rhodes University. As English is the dominant language in most South African higher education institutions (Mawonga, Maseko & Nkomo, 2014), the majority of academic sources available in these institutions are also written in English (Paxton, 2009). This happens despite the fact that the majority of students at these institutions are mother-tongue speakers of African languages and other international languages other than English (Paxton, 2009). The scarcity of textbooks, journal articles and other kinds of academic sources written in African languages tends to have a negative impact, especially on students of African languages at university because they cannot access the knowledge carried by these languages, as we need to learn in and about these languages (Obanya, 2004). When one does not understand the English language that means they will miss a large part of information offered by official education in South Africa as it is written and taught in English (Obanya, 1999). According to Mawonga, Maseko and Nkomo (2014), translation is one of the main methods of developing African languages that have been indicated in language legislation.

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TITLE: pH responsive drug delivery system for pulmonary delivery of anti-TB drugs

ABSTRACT: Tuberculosis is anairborne disease caused by Mycobacterium tuberculosis that affects the lungs leading to respiratory complications and death. Although a number of therapeutics have been used for decades for treatment of TB, multi drug resistance (MDR-TB) and extreme drug resistance (XDR-TB) TB still occurs. One of the cause of complications comes from poor patient compliance due to multiple drugs used (HIV co-treatment) and side-effects. The use of pulmonary drug delivery is to aid in reducing side effects profile and targeted delivery of therapeutics to the target site (lungs). Mesoporous silica nanoparticles were synthesized to carry isoniazid, rifampicin and ascorbic acid for targeted delivery. Control of particle size and morphology was controlled through changing of synthesis parameters: pH, water ratio to silica precursor and calcination temperature. Morphology and surface chemistry of the particles were evaluated for optimization of drug entrapment and drug release profiles. The drug release profile indicated pH responsive drug release under acidic conditions (macrophages intracellular pH). Whilst the drug entrapment indicated that the particles of small size with high pore structure were capable of entrapping high drug content in comparisons to particles of three-times the size. Apart from poor patient compliance, low bioavailability of drugs has been reported to also lead to drug resistance. This is due to low absorption of drugs such as rifampicin in the stomach. This research affords the improvement of increase bioavailabilty of therapeutics to the infected region. This indicates an alternative route of TB drug administration.

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TITLE: Smart drug vehicles to save antibiotics for future generations: case of liposomes for tuberculosistherapy.

ABSTRACT: Tuberculosis (TB) is a poverty related infectious disease that is rapidly giving rise to public health concerns. The lengthy drug administration and frequent adverse side-effects associated with TB treatment make anti-tubercular drugs (ATBDs) good candidates for drug delivery studies. In this field, Several drug delivery systems are being extensively studied. Liposomes represent the most clinically established delivery systems, and lots of researchers have reported liposomes as potential vehicles for ATBDs. However, the costly formulation status of liposomes, mostly due to the use of expensive phospholipids, might preclude their use in the management of poverty related diseases like TB. This work aimed to formulate liposomes as a cost effective option using crude soybean lecithin (CL) for ATBD delivery. Liposomes were prepared using CL encapsulating a potent ATBD named isoniazid (INH) as a model drug. Purified soybean lecithin (PL) was also used for comparative purposes, under the same conditions. INH-loaded CL-based liposomes (CLL) showed a high encapsulation efficiency of 79%, much better than the liposomes made from PL, 20%. In addition, CLL exhibited controlled INH release compared to PL–liposomes and free drug that showed rapid release in the same experimental conditions. The present findings suggest the possibility of encapsulating ATBDs in liposomes using crude soybean lecithin as a potential alternative to expensive synthetic and highly purified natural phospholipids. The properties of CLL seem to be promising for targeted pulmonary delivery of ATBDs. This would improve the ATBD effectiveness, provide better adherence of the patient to the treatment and minimize resistance development.

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TITLE: The development of a trait based theoritcal template for assessing macroinvertebrates vulnerability to elavated sediments loads in Tsitsa river and its tributaries, south Africa.

ABSTRACT: Fine sediment loads in global freshwater ecosystems have been long recognised as major environmental problems. They pose serious threats to ecological structure and functions by adversely impacting on individual taxa and on community composition of macroinvertebrates. Elevated sediment loads impact macroinvertebrates through direct effects including abrasion, burial, clogging or indirect effects such as change in substrate composition and food web changes. These impacts can negatively affect the maintenance of ecological processes by macroinvertebrates. Fresh water macroinvertebrates are heavily involved in assessing water quality and in maintaining of ecological processes and investigation of biological traits can provide information on ecosystems structure and function. Assessing the impact of sediment loads require careful consideration of how macroinvertebrates traits may change in a potentially impacted ecosystem, which can influence the ecosystem functions. Understanding how biological traits of macroinvertebrates relate to ecosystem function can provide important information for ecosystem management. This study is therefore aimed at evaluating sediments effects at multiple levels of structural biological organisation using trait-based approach to make recommendations for management. The findings of this study will add knowledge on the use of a trait-based template for assessing sediments effects that are linked to ecosystem structure and functions.

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TITLE: Quartz crystal microbalance biosensor for selective and sensitive detection of C-reactive protein

ABSTRACT: Quartz crystal microbalance with dissipation (QCM-D) is a label free transducer, which has been extensively investigated in monitoring antibody-antigen interaction [1,2]. A highly sensitive QCM-D immunosensor for C-reactive protein, a cardiovascular disease (CVD) biomarker was developed. The gold quartz crystal was functionalized with 4-mercaptophenylboronic acid to form a self-assembled monolayer which was further modified with the monoclonal anti-CRP antibody. Boronic acids form stable cyclic boronate ester with 1,2-diol at room temperature [3]. The anti-CRP modified electrode was based on the boronic acid-saccharide interaction with the carbohydrate moiety present at the Fc region of antibody. Different antigen concentrations ranging from 10-100 ng/ml were studied to establish the antibody-antigen interaction. A sandwich assay type was established, CRP antigen was first recognised by the anti-CRP antibody which was immobilized on the gold electrode. The sensitivity was further enhanced with a polyclonal anti-CRP antibody. Online regeneration of the sensor was investigated using 100 mM HCl. Sauerbrey and Kevin-Voigt models were applied to estimate the mass change and the viscoelastic parameters

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TITLE: Photophysicochemical properties of zinc phthalocyanine derivatives doped to silica nanoparticles

ABSTRACT: Photodynamic therapy is a treatment regime used to treat various types of diseases including cancer. This therapy utilises a light active species (LAS) known as photosensitiser, molecular oxygen, and a light of appropriate wavelength. The choice of LAS in this work are dyes known as metallophthalocyanines (MPcs) because they produce high cytotoxic oxygen species which is essential for this tharapy. Herein we report on the photophysicochemical properties of two neutral, a positively and a negatively charged MPcs when doped to silica nanoparticles. The MPcs are: unsubstituted ZnPc (neutral), Zn tetraaminophenoxyphthalocyanine (ZnTAPhPc, neutral), tetrakis[4-(iodo-N-methylpyridinium)thio]phthalocyanine (ZnTMPyPc, cationic), and Zn tetra sulfophenoxyphthalocyanine (ZnTSPhPc, anionic). An increase in the ability of the MPcs (for the cationic and anionic) to generate cytotoxic oxygen species (COS) following doping by 59% ,80% from 41% and 43% of the MPc alone respectively. And a decrease for the two neutral doped MPcs to 47%, 29% from 67% and 29% of the MPcs alone respectively. The latter decrease was due to the shielding caused by the large size of the SiNPs.

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TITLE: Role of the Amathole Marine Protected Areas in conserving threatened reef fish species.

ABSTRACT: As South Africa moves towards extending the current Marine Protected Area (MPA) network, it is vital that data are provided to substantiate the effectiveness of existing MPAs and to optimise their design and distribution. The Amathole MPAs are three nearshore no-take zones close to East London, set aside to conserve local biodiversity and in particular populations of reef fish that have been heavily impacted by boat-based line-fishing. The region is central in the distribution of some severely depleted species such as seventyfour (Polysteganus undulosus), red steenbras (Petrus rupestris) and dageraad (Chrysoblephus cristiceps), but little data are available to provide evidence of the protection afforded to these and other species by the MPAs. We used baited remote underwater stereo-video systems (stereo-BRUVs) to assess the fish communities occurring from 10 to 100m depth inside and adjacent to the MPAs. The stereo-BRUVs method permits measurements of individual fish lengths as well as estimates of species abundances and diversity. These indices are compared between sampling sites. Our results indicate that the existing MPAs provide an effective refuge for a number of species. Fish sizes, species abundances and diversity are generally greater within the protected areas in comparison to the exploited areas. However, some important species were only observed at depths greater than those covered by the existing MPAs, and larger individuals of several others are also more abundant at greater depth. This suggests that an offshore expansion of the MPAs would better enable them to protect some particularly vulnerable species and life history stages.

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TITLE: Evaluating the level of epistemic justice during adaptive planning process.

ABSTRACT: Currently Integrated Water Resource Management (IWRM) is being put into practice in a way that incorporates the belief that all stakeholders should be given a voice in decisions that affect them. Involving stakeholders in the whole research process, makes it more meaningful to them and this is crucial since they are the ones who have to live with the decisions in the long-term. Nine Water Management Areas (WMAs) have been introduced in South Africa to be managed by Catchment Management Agencies (CMAs). One of these WMAs is the large Mzimvubu- Tsitsikama (M-T), and the M-T CMA is working to establish Catchment Management Forums (CMFs) across the WMA to ensure that local perspectives are heard. A key first step of a CMA is the development of their catchment management strategy (CMS). Each forum contributes to this development. This research aimed to use Adaptive Planning Process (APP), part of Strategic Adaptive Management (SAM), with local stakeholders to draft a CMS. The research collected reflections from all stakeholders as they continuously engaged with the APP, in order for all to say their views openly without fear of what others might say. This was done to improve the APP in management of complex social ecological systems, and also give an idea of how participatory research can be conducted to yield better results. A Framework was developed to evaluate epistemic justice, to test for participant satisfaction and usefulness of the process. Preliminary results show that the tool is actually successful in terms of including many voices. However, there was a challenge of low attendance and therefore affected the level of representation.

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TITLE: Code Switching in Umhlobo Wenene's Zibuzwa Kuthi Current Affairs Programme

ABSTRACT: The society's expectation is that when a certain media house advocates catering to and serving a certain language group/s, it deliver as stipulated on its language policy. I explore the development of African Languages, particularly isiXhosa in the South African Broadcasting Corporation (SABC). I undertake this by measuring the development of isiXhosa in Umhlobo Wenene's, Zibuzwa Kuthi programme, through English and isiXhosa code switching. Using content analysis of recorded Zibuzwa Kuthi programmes, analysed to measure English and isiXhosa code switching- the latter is a language predominantly spoken on this programme. Code switching measures are those of the programme's presenters, measuring whether code switching in the Zibuzwa Kuthi programme has any effect on the development of isiXhosa. I look at how, why, and for how long English code switches are used. This programme is selected because it is a formal current affairs programme and it is expected that isiXhosa dominates in it, yet there are still English code switching practices. The findings are that the Zibuzwa Kuthi current affairs programme on Umhlobo Wenene reflects the language policy of the SABC regarding the use of official languages (more especially isiXhosa) in South Africa. The influence of English code switching on the programme is aligned with the existing SABC language policy as it puts emphasis on unilingual and multilingual programming. Findings based on language proficiency show that with the limited knowledge of the other two languages that are spoken in the Eastern Cape Province (namely; Sotho and Afrikaans), the presenters and the programme can still thrive compared to not knowing at all about these cultures. This shows how radio is a powerful medium to revive and develop South African indigenous languages.

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TITLE: Kaolinite Mineral Uses for a Sustainable Future: An Industrial Perspective-Grahamstown South Africa

ABSTRACT: Kaolinite Mineral Uses for a Sustainable Future: An Industrial Perspective-Grahamstown South Africa The use of minerals is vital to having a sustainable future. Some industrial minerals most especially clay minerals, tend to harbour many physical and chemical properties that could actually influence a sustainable future positively where used by manufacturing and environmental industries. The industrial mineral kaolin has many uses and favourable properties such as colour, shape, softness, non-abrasiveness, natural whiteness and chemical stability. The relationship between both the physical and chemical properties leads to its application in production of certain industrial products, which make them ideal for such diverse uses including paper, ceramics, rubber, paint, and plastics among large volumes for its various industrial uses. This research study identifies kaolin mineral phases in the clay samples; determines the physical properties of thediagenetic clay minerals in the kaolinitic clay deposits, in order to have a detailed morphological feature description, evaluates the economic potentials and utilisation of the geochemical characterisation of the deposits in Grahamstown area. The methods employed in this study includes the X-ray diffraction analysis, X-ray fluorescence, Spectrometry Scanned Electron Microscope analysis and Compositional Point Counting of Smectite and Illite contents. Possible results emanating from this research include an updated geological information of the study area; hence incorporating analytical studies and data interpretations. In addition, the different dissolution patterns shown in Grahamstown clay deposits as the largest known deposits of good quality kaolin in South Africa, and major and trace element data will be shown on variation diagrams to interpret the genesis of the clay deposits. Also, possible future industrial applications of the clay minerals will be illustrated.

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TITLE: Interrogation of the Solution Dynamics of Protein targets by Coupling Simulation Dynamics with NMR Observables

ABSTRACT: Eukaryotic initiation factor 5A, eIF5A, is a ubiquitous eukaryotic protein that has been shown to influence the translation initiation of a specific subset of mRNAs. It is the only protein known to undergo hypusinylation in a wo-step post translational modification process involving deoxyhypusine synthase (DHS) and deoxyhypusine hydroxylase (DOHH) enzymes. There has been great interest surrounding understanding eIF5A structural dynamic mechanisms because of the influence of hypusinylation on controlling pro-apoptotic processes. Greater understanding of eIF5A dynamics will aide in designing novel anti-cancer and anti-diabetic therapies that rely on the perturbation of active-eIF5A. We extracted solution NMR observable resonances of the purified protein and developed novel approaches to interrogate structure stability through the measurement and extraction of highly sensitive and precise NMR observables. We were able to show that introduction of rigidity into a critical loop region did not only prevent hypusinylation and oligomerisation but prevented appropriate structural organisation critical for eIF5A function in IRES dependant translation initiation. These observations have the potential to impact significantly on the understanding of eIF5A mediated protein translation in novel therapies while the inclusion of the extraction

of NMR observables within MD simulation trajectories will aide in equipping the bioinformatic practitioner with reliable high precision data aiding in precise interpretations of the simulations.

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TITLE: Grahamstown's Hidden Resource

ABSTRACT: Low supply and high demand for water has placed pressure on surface water sources in Grahamstown, underlining the need to develop alternatives, possibly groundwater. Two local aquifer systems, separated by a shale aquitard, exist beneath Grahamstown and can be described as 1. a semi-confined, fractured, quartzitic sandstone aquifer and 2. an unconfined, fractured, tillite aquifer. Overall, the quartzitic sandstone aquifer holds groundwater of a better quality, with the main difference being the high salt content in the tillite aquifer. Monitoring water-table fluctuations in boreholes provided insight as to how the aquifers respond to rainfall. Furthermore, averaged water-tables were used to generate a groundwater elevation map which showed the system to generally mimic the natural topography. The Rainfall Infiltration Breakthrough (RIB) method together with a simple Water-Table Fluctuation (WTF) method estimated recharge to be in the range of 5,23 - 11,09% calculated from five boreholes however, further simulation and addition of parameters is required. The Fairview Spring, located just outside Grahamstown, is an important water resource to many resident's due to poor supply and quality of municipal water. A spring model has been developed to recreate the discharge response observed at the Fairview Spring and is currently being simulated to investigate other spring controls and their degree. The hidden nature of the resource together with the heterogeneity of fracture networks creates an inevitable uncertainty surrounding the system. Proper development and management of the aquifer can only be achieved if the system is continually monitored, modelled and utilised sustainably.

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TITLE: Synthesis of carboxylic acid functionalized phthalocyanines for the electrochemical detection of monoamine neurotransmitters.

ABSTRACT: Neurotransmitters play a vital role in the body and abnormal levels thereof is associated with a number of disease states.1 Due to its various advantages, electrochemistry is an attractive means of detecting neurotransmitters.2 Modification of the gold electrode surface with pH sensitive monolayers and electroactive carboxylic acid functionalized metallophthalocyanines via the electrografting method will enable a distinction in the electrochemical signal due to the neurotransmitter and that due to the interferents (ascorbic acid) by electrostatic pH sensitive properties.

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TITLE: The Effects of Carbon Emissions Tax from Motor Vehicles Sales in South Africa as a Developmental State

ABSTRACT: South Africa is experiencing a burgeoning black middle class with the capacity for private motor vehicle ownership which is incrementally adding to the South African transport sector's culpability for about 13% of the country's total carbon emissions. Recognising the importance of reducing carbon emissions and foreseeing the benefits that a low carbon economy can bring, the South African government has committed to ambitious greenhouse gas emissions reductions of 34% by 2020 and 42% by 2025 against a "business as usual curve", by considering the imposition of indirect taxation on carbon emissions on all emitters. In this paper we analyse the impact of CO2 tax on emissions tax in South Africa as a developmental state, specially focusing on the introduction of this tax type on motor vehicles. This qualitative empirical paper seeks to investigate the effects of indirect taxation on carbon emission from motor vehicles sales. It becomes clear that implementation of this tax will harm economic growth and strategic sectors such as automotive, mining and manufacturing. There is no doubt that the final consumer will suffer from the introduction of these taxes. Also, another negative factor is that foreign direct investment could potentially be deterred. As a developmental state, the introduction of these taxes will harm consumer purchasing power and investor confidence.

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TITLE: Reading to learn as panacea towards cognitive development: a case study.

ABSTRACT: Using documentary evidence (learners' written, DoBE's curriculum documents, lessons plans and prescribed workbooks) semi-structured interviews and Reading to Learn Methodology, to generate data, this paper reports on the positive effect RtL has on the cognitive development of Grade 10 English First Additional learners from a township school in South Africa. The main thrust of this paper is to trace how RtL positively influences cognitive development of a cohort of learners whose teaching was informed by reading to learn principles. This paper argues that learners whose learning is informed by RTL principles experience accelerated cognitive development. The approach is built on the theory of scaffolding proposed by Vygotsky and Bruner, on genre theory (Martin,1985: Christie, 1990) and on the functional model of language developed by Halliday (1985). Systemic Functional Linguistics was used as the analytical framework, the study locates itself within the Critical Paradigm, Subjective Epistemology and Mixed Method research approach. The study revealed that RTL can be the panacea to cognitive development challenges faced by underprivileged learners in South Africa and other similar environments.

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TITLE: Improving democratic water governance through an interventionist research approach

ABSTRACT: In South Africa, democratic water governance is partly enabled through the function of stakeholder-driven Catchment Management Forums (CMF) as the local eyes and ears of Catchment Management Agencies. These forums are the coalface of participatory democracy in water resource management. The extent to which a CMF enables fair and equitable participation of its members to address local water-, sanitation- and catchment-related issues is unclear. I explore whether CMF's can facilitate fair and representative civil society participation in water governance and highlights key enabling and constraining factors affecting participation. This qualitative study used the Water, Sanitation and Catchment Management Forum (WSCMF) in the Upper Kowie catchment in the Eastern Cape of South Africa as a case study. A formative interventionist approach using Change Laboratory method was used. Through Change Laboratory sessions researchers worked with stakeholders and key water decision makers to jointly identify problems, model solutions, and analyse implemented changes in the WSCMF practice. This study advocates for Change Laboratory as an effective method for interventionist research into improving the effectiveness and sustainability of collective work practices. In addition, the study highlights key enabling and constraining factors to democratic participation in CMFs. With hundreds of CMFs being established throughout South Africa, it is important that role players involved in the establishment and functioning of CMFs pay attention to these factors.

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TITLE: From land dispossession to land restitution: understanding post-settlement livelihoods of land restitution beneficiaries in Macleantown, Eastern Cape, South Africa

ABSTRACT: This paper discusses the post-settlement livelihoods of land restitution beneficiaries in Macleantown, in Eastern Cape South Africa. This community was dispossessed of their land in 1970 through apartheid's racist policies and after a protracted struggled, their land was returned to them under the land restitution programme in 1999. The land restitution programme is part of a broader three-legged land reform programme which also includes land redistribution and land tenure. This paper is written in the context of a huge chorus on land acquisition for land reform and less on what happens when people are given land. Secondly, the majority of land reform projects have largely failed to function and to improve the livelihoods of beneficiaries. This study used documentary study, focus groups and in-depth interviews with land beneficiaries in Macleantown, NGOs and government officials to understand the post-settlement livelihoods beneficiaries of land restitution beneficiaries in Macleantown. My study found that the Macleantown restitution project has failed to function and to benefit its beneficiaries because of infighting, lack of proper post-settlement support, old age, reduced land holding size and other issues. This study demonstrates that land transfer without proper planning for the post-settlement period is unsustainable for land restitution.
