

# DIASPORA 2019 CONFERENCE ABSTRACT

## AUTONOMOUS NEIGHBOURHOODS: AN APPROACH TOWARDS ACHIEVING SUSTAINABLE URBAN PLANNING OF SUDAN

G.A. Elashi, Heriott-Watt University, UK

**Purpose:** Planning autonomous settlements as a strategy to alleviate the poverty of Sudanese citizens and allow them to become active contributors towards sustainable economic growth of the country.

**Methodology:** Addressing the existing housing problems in Sudan in relation to its preparedness towards the impact of climatic change, disasters and political instability. The literature review defines the concept of autonomous settlements, emphasising the importance of planning settlements at the urban level rather than as individual entities. Case studies will be presented to gain understanding of what can be learned from previous experiences, adopting similar concepts of autonomous settlements. **Findings:**

Conventional methods of planning settlements in Sudan are not suitable solutions to break out of poverty. The built environment should be perceived as an interlaced matter; multiple disciplines should be considered for sustainable development. **Value:** The urban politics formed by autonomous settlements can be an actor towards the emancipation of Sudanese citizens, enabling them to stand stronger against autocratic authorities.

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## INCREASING UTILISATION OF REPRODUCTIVE HEALTH SERVICES IN HUMANITARIAN SETTINGS: ABO SHOUK CAMP MODEL, SUDAN/NORTH DARFUR

Dr. S.M.M. Kanani, Nile University, Sudan

**Purpose of the paper:** In 2015, in collaboration with aligned state ministries, an NGO established a static clinic to serve Abo Shouk and the neighbouring AlSalam camps (North Darfur-Sudan). A very low utilisation rate was registered. A client satisfaction survey was conducted to explore the clients' opinions, recognised obstacles and limitations. Results showed 43% lacked knowledge about the services, 63% mentioned social rejection, family unacceptability, fear of stigma, 87% could not afford the cost for transportation or fees. This paper will exhibit the intervention to address this challenge. **Design:** This is a descriptive case study showing how, starting in 2017, the purpose of the Abo Shouk clinic was augmented to act as a social development centre. A community owned network of women leaders, one from each geographic sector of the camp, was established. They coordinated the training of a number of volunteer community-based service deliverers who received comprehensive training supervised by the Ministry of Health. They referred cases to the clinic and made follow-up home visits and performed health promotion functions. The programme focused on community engagement, raising awareness, and delivery of high quality reproductive health services, with an emphasis on reaching youths and vulnerable populations. The women leaders provided the necessary support for women in need of medical services. They also liaised with the local sheikh or Omda (the civil community leaders) for girls' education, women's empowerment activities, and skills development for mini income generating projects for poor households. They initiated community engagement and mobilisation. They raised awareness either inside the clinic or as outreach through seminars, mobile TV shows, drama, and songs in local dialectics. This intervention was aimed at increasing the clients' accessibility and utilisation rate of services. In the long run, it is expected to reduce maternal and child morbidity and mortality in the camp. **Findings:** The utilisation rate increased considerably. In 2017, the clinic provided sexual reproductive health (SRH) services to 38,640 people through the Abo Shouk clinic, of which 7,831 clients were provided with contraceptive services and 125 clients were provided with abortion-related care. **Value:** This intervention can be replicated in other settings where the security status is fragile and the knowledge, attitude and practice of the community needs promotion, especially during the post-peace era.

## CAN HONEY CURE CANCER? - CLINICAL CASES REPORT

R. Alhaj, Queen Mary University of London, UK

**Purpose:** The aim of this paper is to share clinical case reports on the effect of honey on cancer patients. **Findings:** In the first clinical case study, honey significantly reduced the number of leukaemia cells. The second clinical case study confirmed the findings with persuasive evidence: honey reduced the stage of the cancer cells. What is special about this case is that only honey therapy was applied without any other treatment. **Originality/value of the paper:** The first clinical case study confirms the anti-cancer effect

of honey on cancer patients. **Practical implications:** The two clinical case studies give us an indication of the effect of honey on cancer patients. It is strongly recommended that a pilot study is carried out on one type of cancer, such as breast cancer, since both incidents and mortality rates are high due to this type of cancer in Sudan.

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## **HEALTHCHAIN: TOWARDS UNIVERSAL HEALTH COVERAGE IN SUDAN: A BLOCKCHAIN ENABLED HEALTH SUPPLY MANAGEMENT SYSTEM IMPROVING ACCESS, EFFICIENCY AND TRANSPARENCY**

**Dr. E. Abdelraheem, United Nations Development Programme (UNDP), Turkey**

This White Paper demonstrates the basic foundations for a *HealthChain*: A blockchain-enabled supply chain management system to solve the challenges that are facing the health systems in Lower and Middle-Income Countries (LMICs). The paper is presented to materialise joint collaboration between UNDP and UNICEF on innovative solutions for sustainable development. The invention of Blockchain has hit the World with its potential in different sectors. Although it was initially designed to back up the transactions of BitCoin (the first digital currency) its potential applications expanded to other industries. These include the global supply chain and shipping industry, where earlier indications from Maersk (the shipping container giant) show that its implementation has meant a reduction of approximately 25% in operating costs and greater time efficiency. Health supply chain management, especially in LMICs, is facing great challenges related to regulations, management and structure, multiple tiers and poor forecasts and irregularity of funding and purchasing. These challenges have led to frequent stockout and sometimes waste of medicine, health supplies and commodities. The ambitious SDG3 targets and related strategies on achieving Universal Health Coverage will not be attainable with the current status of health supply chain management. Additionally, the increase in global counterfeit medicines and supplies hit almost US\$400 billion, putting additional pressures on health systems and global health agencies. The National Medical Supplies Fund in Sudan is the entity responsible for the public procurement and distribution of medicines in Sudan. In 2011, as part of a reform, electronic procurement was introduced. Although some success was achieved, the problems related to poor forecasts, stockouts and wastage remained unsolved. *HealthChain* is a blockchain enabled health supply management system that will include all the stakeholders along the supply chain, from manufacturers, global shippers and handlers, customs and other regulators, to in-country buyers, distributors and dispatchers. Through its development stack (protocol, network and application layers) and the transactions of the information, documents, receipts and execution of work through smart contracts, *HealthChain* is capable of addressing most of the current challenges. This will lead to greater efficiencies, increased collaboration, better pricing and overall improved equity and access to essential medicines, technologies and other health supplies. UNDP and UNICEF (and potentially other global health agencies) are in a unique position to leverage and shape the global supply market. A recent partnership on Sustainable Procurement in the Health Sector (SPHS) that aimed to promote the use of efficient materials, reduce waste, and prioritise products with low carbon footprints, can create cost savings and environmental and health benefits, demonstrated the power of

partnership and joint action. In order for *HealthChain* to be implemented effectively, the current global, regional and national regulations, guidelines and policies will need to be updated to allow for innovation to grow at scale, without jeopardising the safety, accessibility and affordability of the medicines, technologies and other health supplies. A multi-stakeholders collaboration, including multilaterals, academia, global philanthropy and governments, is crucial for the piloting and further scale up.

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## INTERNATIONAL ACCREDITATION FOR IMPROVING MEDICAL LABORATORIES IN SUDAN

**Dr. A. Elbireer, International Aids Vaccine Initiative (IAVI), UK**

**Purpose:** Medical facilities and laboratories are essential and a fundamental part of all health systems. Laboratories influence the decision-making mechanism in the management of patients as well as disease prevention and control. **Approach:** Accreditation is a procedure by which an authoritative body gives formal recognition that a laboratory and its staff is competent to carry out specific laboratory testing tasks. It is a validation process established to ensure that medical laboratories deliver high quality services that meet the needs and requirements of their clients. **Findings:** Medical laboratories in Sudan are not internationally accredited. Working with partners, the World Health Organization (WHO) in the African region developed a step-wise approach towards the accreditation of health laboratories in the African region, commonly referred to as the Stepwise Laboratory Quality Improvement Process Towards Accreditation (SLIPTA) programme. The SLIPTA programme provides a framework for strengthening national laboratory services towards fulfilment of the ISO 15189 standard. **Practical implications:** To adopt SLIPTA in Sudan, and intensify the roll out of the Strengthening Laboratory Management Towards Accreditation (SLMTA) programme as prerequisite laboratory quality capacity building.

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## SUDAN NATIONAL STEPWISE SURVEY OF NCDS RISK FACTORS

**Dr. A. Abdelrazig, Dr. N.A. Wagialla, Dr. M.A. Elimam, Dr. S.E. Ali, and Dr. N.I. Mohamed, Ministry of Health, Sudan**

Worldwide non-communicable diseases (NCDs) represent 43% of the burden of disease. By 2020, this burden is expected to rise to 60%, and NCDs will be responsible for 73% of deaths. Most of this increase will be accounted for by emerging non-communicable disease epidemics in developing countries. The Sudan STEPwise survey (SSWS) December 2016 is the first nationally representative survey to collect comprehensive information on risk factors for NCDs and oral health in Sudanese adults aged 18–69 years. The survey was conducted jointly by the Federal Ministry of Health (FMOH), World Health Organization (WHO) and Central Bureau of Statistics (CBS), and covered eleven states from the six geographical regions: North, East, Khartoum State, Kordofan, and Darfur. A four-stage stratified cluster sampling design was implemented, resulting in a total sample of 8,154 households and individuals from 302 clusters. The data collection followed the WHO STEPwise Survey Manual, which recommends three steps; STEP 1 behavioural risk factors, STEP 2 anthropometric and physical measurements, and STEP 3 biochemical measurements. All results were weighted by gender and age. The response rate in this survey was high, 95% in STEPS 1/2 and 88% in STEP 3. The SSWS goal is to provide baseline indicators on determinants of NCDs and their risk factors among Sudanese adults.

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## TELEMEDICINE AND ITS APPLICATIONS IN LOW-INCOME COUNTRIES

H. Esmat and R. Abdelnabi, University of Khartoum, Sudan

Dr. A. Osman and Dr. W.A. Bashari, University of Cambridge, UK

**Background:** The evolution of technology, coupled with the increased understanding of the concept of knowledge transfer, has made it easy to exchange and transmit useful ideas between individuals and institutions. The health sector, in both high and low-income countries, can benefit from the application of knowledge transfer in many ways. In this short ‘opinion’ piece, we will elaborate on different methods that use knowledge transfer methodology to help advance the practice of telemedicine in low-income countries. **Example Case:** In this first model, we describe ‘individual patient’s benefit’ from the application of knowledge transfer methodology. The index patient in this category is a 20-year-old male with progressive blindness due to a large skull-base tumour, who presented to a local clinic in Khartoum, Sudan. No specific treatment was instated at that stage, which led to further health deterioration over subsequent years. His case was discussed with specialists from the United Kingdom, and a face-to-face interview with the patient was arranged. Specific treatment was proposed, and further follow-up sessions were arranged using telephone-based and online platforms. To date, the patient’s vision showed significant improvement and the tumour reduced to >50% the original size. **Conclusions:** Knowledge transfer in the healthcare sector is a useful tool that can be used to implement the practice of telemedicine in low-income countries. We recommend the introduction of speciality-specific guidelines, in the form of review publications and/or book chapters, tailored and adjusted to the local medical practices in targeted low-income countries. In addition, we recommend more training to healthcare personnel in the field of knowledge transfer and data technology, with the aim of equipping professionals with the right expertise that would enable them to develop and implement telemedicine technology.

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## THE ROLE OF THE SWOT MODEL FOR STRATEGIC ANALYSIS IN THE PERFORMANCE OF SMALL BUSINESS IN SUDAN (AN ENTREPRENEURIAL APPROACH)

Dr. F.A.E.M. Farah, Omdurman Islamic University, Sudan

This study aims to understand the role of the strategic analysis model SWOT in the performance of entrepreneurship projects in Sudan in terms of identifying the Strengths, Weaknesses, Opportunities and Threats that affect performance. It would then contribute to solving problems and achieve goals by selecting appropriate strategies for projects, by answering the main research question related to the study and testing the hypotheses of the study. The importance of research is that entrepreneurship projects are of great importance for economic development, and are considered as the driver of new jobs; it is considered an incubator for innovations and inventions. Most of these projects are the product of ideas of creative people; the projects therefore need people with special specifications - entrepreneurs. Research is also considered a nucleus for large projects, in that research is usually small projects encompassing pioneering thinking and modern technology, using information technology, Internet applications, social networks and e-marketing in transactions. In addition, research is an entry point for cultural diversification, and this study is expected to have a positive impact on the future performance of entre-

preneurship projects in Sudan. The study was applied to a sample of entrepreneurship projects in Sudan using the questionnaire as a primary source of research. The descriptive analytical methodology and the SWAT analysis model were used in this research to reach the results.

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## ROLE OF HEALTH PROFESSIONS EDUCATION TO ACHIEVE THE SUSTAINABLE DEVELOPMENT GOALS

**Dr. M.E. Abdalla, University of Sharjah, UAE**

**Purpose:** The purpose of this paper is to explore the role that should be taken by health professions education (HPE) institutions in order to align the outcomes with the call for universal health coverage (UHC) and the ultimate sustainable development goals. **Methodology:** This is a conceptual paper that explores the new publications by the World Health Organization, namely the National Health Workforce Accounts (2017), and the suggested competencies for UHC and recommended actions in the HPE sector in Sudan. **Findings:** To align with the UHC momentum, the HPE must pay attention to three major areas: (1) building the core competencies of each health profession that fits with the context of Sudan and leads to professionals becoming fit for purpose, (2) the adoption of the social accountability principles in all health professions education institutions, and (3) the development of an accreditation system and standards that are based on the outcome. **Value:** The value of this work is to highlight the importance of reform in HPEs to fit with the UHC and the SDGs.

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## SUDAN URBAN DEVELOPMENT THINK TANK: HOW IT INFLUENCED THE MAKING OF THE URGENT PRIORITIES FOR THE MINISTRY OF INFRASTRUCTURE & TRANSPORTATION

**H.I. Sulieman, Qatar Rail Company, Qatar**

This paper explains how a starting initiative Think Tank in April 2019, before the declaration of victory, based its research of sustainable development on a Think Tank of seven engineers, and resulted in one of the most successful initiatives that was appointed by FFC to organise its workshops for the Ministry of Infrastructure & Transportation. The paper uncovers the challenges and successes, and how other Ministries and initiatives decided to ask for assistance in following the templates established and lessons learnt.

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## **MENTAL HEALTH STIGMA AND CULTURAL PERSPECTIVE WITHIN THE SUDANESE COMMUNITY**

**S. Eltayeb, George Mason University, USA**

The Sudanese Revolution sparked the transition into recognising mental health within the Sudanese community. Certain unfortunate events during the revolution meant the youth had to deal with emotional, psychological and social distress. The stigma in recognising Mental Health, such as discrimination and being in denial of the disorder (specifically amongst Sudanese families), led to individuals harming themselves because of the lack of support, awareness and knowledge of mental illness. My objective for this presentation is to help the youth recognise their emotional and psychological stability without feeling doubtful and discriminated against, and to empower all generations to acknowledge the importance of mental health disorders. This presentation will consist of awareness and solutions for multiple psychological disorders that are common within the community, such as depression, anxiety, post-traumatic stress disorder, and more. The goal is to provide support groups throughout Sudan, in which the individual will be provided with the help they require to prevent any self-harm.

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## **E-HEALTH IN THE SMART DEVELOPMENT OF SUDAN**

**Dr. H. Eldosougi, NHS Global Digital Exemplar Evaluation Program  
and Digital Academy, USA**

According to the World Health Organization (WHO), “e-Health is the use of information and communication technologies (ICT) for health”, and 58% of its member states have an e-health strategy. At present, Sudan is somewhat deficient in health information documentation; it is in need of a national framework to organise and develop the existing systems and build on them in order to create adequate statistics and enhance service delivery. This E-Health roadmap offers guidance for the integration of our existing health system components, and ongoing strategies and implementation methods to establish a world renowned health system infrastructure. A national Electronic Health Record System (EHR) provides evidence-based information from the collective efforts of stakeholders to increase volume and value of outcome measures in line with national health strategies and policies. It provides evidence-based decision-making in line with international directives for sustainable health management. It also offers transparency, accountability, and an adequate means of monitoring progress to ensure ongoing improvement in terms of healthcare equity, quality, safety, and efficiency. The aim of this discussion is to give some insight into what e-health looks like, and how it can be incorporated into clinical settings in Sudan.

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## **BEEKEEPING FOR PEACE, PROSPERITY AND SUSTAINABLE DEVELOPMENT IN SUDAN**

**Prof. S.E.A. Mohammed, National Center for Research, Sudan**

Beekeeping is a lucrative and sustainable business activity, mainly due to the low start-up costs. It is a useful means of strengthening and creating people's livelihoods. In Sudan, there is an estimated 50,000

beekeepers, rearing 200,000 colonies. The Forage carrying capacity is 2.6 colony/hectare. The estimated forest area is around 71.0 million hectares and the irrigated land is about 1.9 million hectares. This total area is capable of producing 2.8 million MT of honey annually; this is worth US\$1 billion and equivalent to 18 million barrels of petrol. Despite these potentialities, Sudan is ranked least in Africa for contribution of apiculture to the economy: the beekeeping sector is rudimentary and unexploited. This paper deals with how beekeeping can contribute towards building peace and prosperity in Sudan. It aims to analyse the current beekeeping situation and challenges, and forward recommendations for policy-makers to set a strategy for conservation and sustainable utilisation of this resource.

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## **CLIMATE CHANGE REFUGEES IN SUDAN: “CAUSES AND PROTECTION MEASURES”**

**R. Elhussien, UNESCO COUSTEAU Ecotechnie Chair, Sudan**

Climate change and environmental degradation have a huge impact on the whole planet, but one of the most significant consequences is human migration, forced or otherwise. Many scholars argue that there are already a large number of people moving, with millions more expected to follow as a result of the extreme weather events associated with climate change. This is, as John Holmes, previously Under-Secretary-General for Humanitarian Affairs and Emergency Relief Coordinator to the UN, said: “the new normal”. The number of recorded disasters has increased over the past decades. Climate change “refugees”, or people who are displaced by climate change inside or outside their own country, are neglected in international environmental law, and related conventions and agreements. More focus should be given to the phenomena of “climate refugee” because the number of people affected by climate change and who are moving from their homes and countries are increasing. In this research, we discuss the potential causes, protection measures, and protection challenges for climate refugees, both internationally and on a regional level, with a specific focus on Sudan. This is to have an understanding of the causes of internal displacement and refugee phenomenon to and from the country. The Sudanese Red Crescent Society (SRCS) played a large role in this research, facilitating access routes to refugee camps and Internally Displaced People (IDPs) in eastern and northern Sudan, respectively. They helped give an example of national organisation input to the response to natural disasters, humanitarian assistance, and protection measures given to climate change refugees and IDPs, also showing the policies and framework they apply and follow. This research gives a clear insight into how climate affected people are dealt with and if they are considered refugees or not. This is dependent on the definition of refugees in the Geneva Convention, and other related conventions and definitions. It also shows the relationship between climate change, disasters, conflicts, and displacement.

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## **A PROPOSAL ON A CAPACITY BUILDING PROGRAMME TARGETING “DEVELOPMENT PROJECTS MANAGEMENT”**

**Dr. O. Elfiel, Arab Bank for Economic Development in Africa, Sudan**

**Dr. H. Mirghani, Islamic Development Bank, KSA**

The importance of the way development projects are managed and coordinated cannot be over emphasised; in fact, this is the cornerstone of any successful “Result Based Management”. This proposal aims to build the capacity of staff handling the management of development projects financed through external donors in both public and private sectors. The suggested capacity building will consist of training courses that will be designed following the well-known and accepted project cycle endorsed by all financing institutions. The proposed training programmes will be clustered in three categories. Two will target the project cycle from programming to post-evaluation for public sector projects, and the third category will address private sector projects and the necessary skills needed for their management.

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## **DECENT WORK AND ECONOMIC GROWTH: A VIEW OF THE YOUNG SUDANESE GENERATIONS**

**Dr. T.E. Mustafa, Global Medical Technology Ltd, UAE**

**R. Faysal, British Gas, UK**

**S. Idriss, Saudi Investment Bank, KSA**

**K. Ahmed, Sudanese Human Resources Management Society, Sudan**

The aim of this paper is to provide the new civilian transitional government of Sudan with a scientific view of the current situation, and provide recommendations that could help in supporting young generations in finding decent work. In turn, this will support sustainable social-economic growth. This presentation is informed through the study of the current demographic, social, economic, political and environmental status, supported by a literature review of youth programme organisations. It will tackle solutions and provide recommendations to Sudan’s current public policy-makers, as well as call for collaboration with all stakeholders in this matter, i.e., Governmental and private sector employers. This presentation will be balanced and presented through slides and professional discussions. The focus on youth is a deliberate choice in order to address future growth and foundation for prosperity, and sustainable development. The outcome would address solutions for employment and decent work, conforming to the SDG 8 from a Sudanese perspective.

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## HIV-INFECTED PEOPLE IN SUDAN MOVING TOWARD CHRONIC POVERTY: POSSIBLE INTERVENTIONS

Dr. S.M. Ismail, Federal Ministry of Health, Sudan  
 Dr. A.A. Eisa and Dr. F. Ibrahim, University of Medical Science  
 and Technology, Khartoum, Sudan

**Purpose:** We sought to identify the socioeconomic impact on people living with HIV (PLWH) in Sudan. **Method:** Focus group discussions were used to collect data and identify the most outstanding domains of HIV impact on PLWH, and the survival mechanisms that may be common to a group of diverse HIV-infected persons (n = 30). **Findings:** The findings indicated that the most striking financial and social impacts were due to the stigma associated with HIV in the conservative Sudanese society. This led to loss of work with all its consequences (e.g., children's education and health care expenses were affected). **Outcomes:** The socioeconomic impacts of HIV on infected populations are discussed, and suggestions for possible interventions to mitigate harmful impacts and stigma within the society, the workplace, and health care settings are highlighted. We concluded that HIV has intensified the existing problems of infected people, contributing to their vulnerability to poverty.

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## TOWARDS SUSTAINABLE ORGANIC FARMING SYSTEMS TO SECURE FOOD PRODUCTION IN SUDAN

Dr. S.A.M. Saad and I.F. Khalil, National Center for Research, Sudan

**Purpose:** This paper aims to discuss the necessity for the application of organic farming in Sudan to improve soil productivity and secure food production in arid and semi-arid areas of Sudan. **Design/methodology/approach:** Different soil samples were collected from different locations in Sudan and analysed for an assessment of quality. Data dealing with aridity and climatic zones classification of Sudanese soils were also collected. **Findings:** Results revealed lower organic matter content and low soil fertility status in all the studied locations. The availability of minerals (phosphorus and potassium) was found to be very low. The application of organic improvers would improve the organic matter of soil and therefore soil productivity. **Original/value of the paper:** The application of organic farming systems is vital in Sudan for sustainable crop production and improving soil quality. Certain measures should be implemented regarding the organic farming systems, e.g., organic regulations and certification, also regulations regarding land use systems in Sudan should be modified.

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## THE BIGGEST CHALLENGES DEVELOPING CITIES IN AFRICA ARE LIKELY TO FACE OVER THE NEXT 10 YEARS AND HOW THEY CAN BE OVERCOME USING INTERDISCIPLINARY AND SYSTEM'S THINKING APPROACHES

M.M. Idris, S.-C. Tsai and Y. Jin, University College London, UK

The growing attention on urbanisation and the sustainability and resilience of cities has driven the dialogue regarding the challenges that developing cities are expected to face over the next 10 years. This paper considers the challenges in urban housing and water in Africa and in Sudan through critically assessing the trends, causes, and implications from several interdisciplinary angles. To attain the goal of developing adequate, accessible and affordable housing in Africa and Sudan, cross-border investment, land grab, and land rights need to be considered in order to prevent the formation of ghost towns and the displacement of people. For the development of sustainable water resources in Africa and Sudan, attention to the needs of all people is essential, and decentralised water management initiatives are beneficial. SDGs and NUA acknowledge developing cities as opportunities for policy change, systems thinking, a renewed focus on small/medium cities, and a context-specific and/or people-centred approach. **Purpose:** This paper considers the challenges in urban housing and water in Africa and Sudan through critically assessing the trends, causes, and implications from several interdisciplinary angles. **Design/methodology/approach:** Literature review and systems thinking approach. **Findings:** This essay analyses the biggest challenges developing cities are likely to face in their attempt to achieve sustainable development in the next 10 years. **Originality/value:** By considering the progress of, and learning lessons from, past projects (i.e., the importance of interdisciplinary perspective, system thinking, context and a people-centred approach and the focus on small/medium cities), the outwardly overwhelming challenge of achieving inclusive, resilient and sustainable cities becomes more achievable.

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## TRACING WEATHER VARIABILITY DURING THE WINTER SEASON IN SUDAN

H.E. Khogly, Sudan Meteorological Authority, Sudan

The underlying source of climate variability affecting Sudan is the fluctuation in agricultural production-related temperature. This study concerns the Sudan experience in applying seasonal climate forecasts, and investigates the tracing of weather variability during the winter season in Sudan. The importance of the impacts from the perspective of the Sudan economy is then reviewed. Production variability in agricultural, aviation and regions is described, together with the flow-on impacts to the economy generally. Seasonal climate forecasts are increasingly being used to benefit decision-making in the more climate-sensitive sectors of the economy. The second role of the study is to provide a broad research context for applications of seasonal forecasting to manage risk arising from climate variability. Farmers are the major group of potential users, and they have identified a more confident use of forecasts as a priority for research. Extensive, but neglected, research on how risky decisions are made is reviewed to look for opportunities for alternative ways of presenting probability information. The relatively recent impact of probabilistic thinking on human affairs suggests that the concepts are not intuitive. Alter-

natives could take account of research on biases in intuitive approaches, and therefore contribute to greater confidence in the use of seasonal forecasts. The paper concludes that the communication aspects of seasonal climate forecasts warrant greater priority if the potential importance of the forecasts in improved risk management is to be realised. Historical (2000–2015) daily mean temperature records from two meteorological stations in Dongla and Elfasher were analysed. It is planned to use a statistical method to obtain temperatures, normal and average from normal, by using analysis of variance (ANOVA) and regression analysis to predict temperatures for future years.

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## TOURISM AS A CREATIVE ECONOMY SYSTEM: CRAFTING A SUDANESE MODEL

Dr. A.M. Aliraqi, King Saud University, KSA

After suffering decades of weak economic performance, Sudan has been looking for a new concept, examining old paradigms, and seeking optimum utilisation for resources; tourism stands as a neglected sector in this mechanism. The creative industries play a major role in generating, transforming knowledge, and developing faster than the global economy as a whole in recent years. This paper presents tourism's creative economy potentialities, assessing the proposed impact on economic indicators: employment, investment, balance of payments, government revenues, etc. The paper re-evaluates tourism as a creative economy based on the characteristics of this brand. These encompass an enriching value chain, building human capacity, wide-base inclusive growth, and investing in cultural diversity. The following model contributes to Sudanese SDGs: suggested framework, policies, indicators and branding.

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## IMPACT OF FERTILISATION MANAGEMENT AND SOIL CONDITIONS ON SOIL RESPIRATION IN A SEMI-ARID ENVIRONMENT OF SELEITE FARM-SUDAN

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Dr. S.A.M. Saad, National Center for Research, Sudan

**Purpose:** The aim of this paper is to investigate whether the application of fertiliser on soil under cultivation of sorghum, supported by irrigation, may encourage soil moisture conditions for respiration, especially after several days of irrigation. **Method:** In this study, traditional fertilisers were applied using the same amount as by many farmers; this was on three sites of Seleite farm during the summer, the season for sorghum cultivation, in order to quantify soil respiration (SR). After 14 days, soil respiration from the fields was measured corresponding to the status of field conditions before and after irrigation. **Findings:** Our results showed that the mean soil respiration rates were significantly increased by the



amount of moisture and fertiliser in the field. The high level of correlation indicates that SR was strongly controlled by the amount of soil moisture and fertiliser. SR tends to increase with the increasing moisture in treatments, while it tends to decrease with the decreasing moisture. Higher SM (2.74%) and lower ST (28.22°C) in wet conditions (after irrigation) compared to dry conditions (before irrigation) resulted in higher SR (6.16 Kg CO<sub>2</sub>-C ha<sup>-1</sup>day<sup>-1</sup>) in treatment A, “fertiliser A”. Higher ST (34.8°C) and lower SM (1.852%) that occurred in dry conditions, induced lower SR (3.62 Kg CO<sub>2</sub>-C ha<sup>-1</sup>day<sup>-1</sup>) in the same treatment. The increase of almost 50% in soil moisture caused a significant increase in SR by nearly 50%, in all wet days during the season. Measured over a period of both patterns (wet vs dry), SR in treatment B was approximately 6.15% higher than that of A and C treatments. **Practical implications:** These results indicate that fertiliser management could significantly increase SR production, leading to higher SR at high fertiliser amounts. The present results suggest that adding fertilisers with different amounts to these dry-wet soil conditions would result in SR variations across the Seleite experimental fields. However, the sensitivity of SR to SM increased when fertilisers were incorporated in the soil. Therefore, the management of fertilisers by using different amounts could prevent soil moisture losses through the enhancement of soil conditions, depending on irrigation.

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## GEOLOGY AND GOLD PROSPECTING IN THE ARIAB MINING LEASE AREA, NORTHEAST SUDAN

**Y.S.A. Mohamed, Ministry of Mining and Energy, Sudan**

**Purpose:** The study area for this research lies within the Ariab Mining Company lease area, about 650km northeast of Khartoum, and 250km west of Portsudan. A specific area was selected for gold prospecting and detailed geological mapping. **Method:** Pre-fieldwork consisted of desk studies, the preparation of a base map using a geo-referenced Satellite image, determination of way points for sampling, measurements and field observations. During the fieldwork, chips of mineralised rock samples were collected from various styles of mineralisation and alteration zones; these included quartz veins, massive sulphides, gossans, and siliceous barite, in addition to alluvium samples. Collected samples were prepared for geochemical analysis, as well as thin and polished section studies. **Findings:** The geological observations showed the area is underlain by metavolcanic rocks intruded by granodiorite, as well by felsic dike and quartz veins. The results of geochemical analysis indicated the presence of gold in quartz veins from the Tammani area ranging from 0.1–8.1 ppm, and in gossan from the Odoruk area amounts of 0.1–7.1 ppm. The trace elements analysis of As, Cd, Sb, and Mo revealed a perfectly positive correlation with Au. In addition, there was a weak positive correlation between Au and Bi, Cu, and a weak negative correlation between gold and Zn, Ag. A microscopic study revealed the presence of opaque minerals of pyrite, chalcopyrite, Covellite, and gold. An alluvium sample for heavy minerals analysis showed the presence of gold.

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## GUM ARABIC MORE THAN EMULSIFIER AND FOOD ADDITIVE; A NEW EXPERIMENTAL VALIDATION OF ANTI-PROLIFERATIVE AGAINST COLORECTAL COLON CANCER CELL LINES: PART 2

Dr. A.A.M. Elnour, International Islamic University, Malaysia and University of Kordofan, Sudan

Dr. M.E.S. Mirghani, Dr. N.A. Kabbashi, Dr. Md.Z. Alam and D. Daddiouaissa, International Islamic University, Malaysia

Dr. K.H. Musa, Qassim University, UAE

Dr. N.H. Abdurahman, Universiti Malaysia Pahang Gambang, Malaysia

**Purpose:** The aim of this paper is to discover the cytotoxicity activity of *Acacia seyal* gum and Prebio-T-commercial (PTC) samples on human colon cancer (HCT-116) cell lines; in addition, its polyphe-nolic properties are investigated. **Approach:** The methodology used in this paper involves fractionating methanol crude extracts of both *Acacia seyal* gum and Prebio-T-commercial into methanol, respectively. The cytotoxicity activity on human colon cancer cell lines for each fraction has been studied using sul-forhodamine B assay (SRB assay). Both samples, *Acacia seyal* gum and Prebio-T-commercial (PTC), have been analysed precisely using high performance liquid chromatography (HPLC) technique. **Findings:** Based on the analysis, more cytotoxicity activity was identified in the sample obtained from *Acacia seyal* gum ( $IC_{50}=13.36\mu\text{g/mL}$ ) compared to PTC ( $IC_{50}=17.18\mu\text{g/mL}$ ). Regarding the flavonoids content (FC), quercetin was the only flavonoids detected in the samples, found to be approximate of  $4,640\mu\text{g}/100\text{g}$  for *Acacia seyal* gum, almost double value of  $2,560\mu\text{g}/100\text{g}$  for PTC. **Implications:** The implications of this study are the evidence of flavonoids content and anti-cancer activity for both *Acacia seyal* gum and PTC used in folk medicine, as well as anticipation of cancer cell growth. It is expected that the proposed methods will give a noble contribution to the possible use of their bioactive compounds as natural anti-cancer agents.

## THE EXPECTED ROLE OF WAQF IN SUPPORTING THE DEVELOPMENT OF SUDAN

Dr. A.-R. Suliman, Almulla Advocacy and Consultancy, UAE

Human welfare is the core message of Waqf: humans are the first and main concern. Therefore, social solidarity is the expected target of Waqf. According to this view, the Waqf became one of the major mythologies that are typically compatible with the international human affairs declared by the United Nations aimed at the development of human resources. Waqf is no longer concerned with the narrow approach that restricts Waqf to serving mosques and praying rooms only. This narrow approach contradicts the broad scope of Shariah in adopting Waqf as the mechanism to satisfy the basic needs and improvement of communities. The most important features of the Waqf are to enable people to have a life that acquaints them with knowledge as well as health, esteem and satisfaction. The researcher traces the different roles of Waqf and underpins its distinguished capacity in boosting entrepreneurship of the third sector (The Social Sector represented in Waqf, charitable and human works). The researcher sheds light on the Waqf as one of the drivers contributing to development through providing new and



innovative solutions to help improve the sectors and the wellbeing of the needy. Subsequently, within this innovative approach, all the categories will participate positively in an innovative tool in increasing productivity and reinforcing human rights. This research is in response to the aspirations of the Scientific Committee organising the Sudan SMARTDEV conference, to be held in Khartoum, 28–29 December 2019. The researcher appreciates the concerns of the said Committee, where it has been keen enough to organise a conference focusing on presenting value added to the public in a very critical transitional period of the history of our beloved Sudan. Undoubtedly, the conference is being held amid the backwardness of the state in consolidating the needs of its citizens at both the economic and social levels, especially in satisfying the citizen's needs in ensuring they have access to food, health, housing and education. Based on this research, the proposed role of the Waqf as a system is to provide a helpful tool, contributing towards filling these gaps, together with the state. The research has answered the question: Has the Waqf been able to introduce positive criteria to ownership in the Muslim Society with perspective (The public ownership of the charitable Waqf)? On the other hand, was the Waqf able to introduce a viewpoint on human investment? At the same time, to modify the legislation to be compatible with the conception of "Waqf for the Humanisation of Sustainable Development". Furthermore, how can we make use of the outcomes of Waqf investments for the benefit of human welfare, and how can we rationalise resources in a way that achieves the sustainable development requirements? The research has concluded with underpinning the proposed role of Waqf in the development of Sudan in several ways, as follows:

- the historical role of Waqf in building Muslim communities and its impact on western communities;
- studying the current status of Waqf in our beloved Sudan, and highlighting its proposed role to be a supporting mechanism for the total development in Sudan;
- providing points of view, suggestions covering legislations, economic and administrative approaches in order to fill the gaps that are hurdles facing the development of Waqf in our beloved Sudan. These are hurdles that hindered its leadership to the third sector (the Waqf, the charitable works and human welfare).

All these factors shall be studied in line with the vision that the Waqf is one of the security valves for activating its social and economic role in consolidating the social role in society. The target of this paper is to restore the prestigious role of Waqf in building and enhancing contemporary societies. At the same time, to provide and support national projects and decision-makers in both the public and the private sector who are concerned with the third sector. Needless to say, it helps to prepare a strategic plan in order to overcome the present situation in Sudan into further horizontal schemes supporting the sustainable development.

## INDUSTRIAL WASTE MANAGEMENT IN THE PHARMACEUTICAL INDUSTRY SECTOR - KHARTOUM BAHRI INDUSTRIAL AREA

**Dr. M.A.M. Ahmed, Mayamin Company, Sudan**

**Purpose:** This study focuses on the management of industrial waste in the pharmaceutical industry in the Khartoum North industrial area. **Design/methodology/approach:** The research material was collected through a laboratory analysis of wastewater samples resulting from factories and compared with the instructions of the Sudanese Standard for Wastewater, measuring the concentration of suspended micro particles in production units and comparing them with occupational health instructions. This was in

addition to direct observation and to a questionnaire distributed among factory departments. **Findings:** The results showed that the factories disposed of some solid waste by selling it, and hazardous waste was chemically treated before final disposal. However, the bulk of the wastewater was discharged into the sewage network without adhering to Sudanese standards; only 16.7% of the factories' samples were treated as polluted air by suspended particles. **Original/value of the paper:** The paper recommended that there was a need to implement integrated environmental management of the industry and keep pace with global developments in the field of combatting industrial pollution from its sources; it encourages further research and studies in this field.

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## OVERCOMING THE RENEWABLE ENERGY CHALLENGES IN SUDAN SUSTAINABLE/RENEWABLE ENERGY INCUBATOR

**Dr. A. Bakhiet, National Research Council, Sudan**

**Purpose:** The overall objective of this paper is to share Sudan's experience in overcoming the challenges it faces regarding the adoption of sustainable energy pathways through a novel approach, namely by the establishment of a youth incubator that encourages entrepreneurship in fields of sustainable energy technologies. **Design:** The ideas and information presented in this paper are based on the personal experience of the author as a founding director of the incubator between 2017 and 2019. **Findings:** The main findings include identifying the envisaged success factors in the adopted management system, identifying the main challenges, and suggested recommendations. **Value:** The value of this work is that it contributes to the discussion about the role of the incubators and entrepreneurship in achieving sustainable development in Sudan.

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## IS THE GRASS GREENER ON THE OTHER SIDE? HIGHLIGHTING THE REALITIES OF YOUTH MIGRATION

**M.A.K. Ibrahim, Westminster and Kensington & Chelsea Council, UK**

Sudanese mass migration to the UK began in the late 1980s to early 1990s. This was a result of a military coup led by the now former President Omar ElBashier. The initial intention for the majority of those who mass migrated out of Sudan was to remain in exile for a short term; this was because it was widely assumed that the new Army regime would not last long and that a return to a Democratic government would be forthcoming. However, this turned out not to be the case and as the situation deteriorated in Sudan, a second mass wave of immigrants and asylum seekers to the UK and other western nations followed from 2003 onwards. Sudanese in the United Kingdom (also British Sudanese), including Sudanese-born immigrants to the UK and their British-born descendants, are an extremely diverse national group, especially in terms of political and religious views. It is thought that the UK is home to the oldest Sudanese diaspora in the Western World, as well as one of the largest. Many of those who sought political asylum, or economic migrants particularly those of a young age, had aspirations of achieving economic benefit as well as personal development, to name but a few. While we cannot deny that some of those

achievements have been attained with varying degrees of success, for many the reality has them facing other struggles and challenges in their new environment, struggles that were not part of the pre-written script prior to them leaving Sudan. On reflection, this has many of them posing the question, “was it really worth it?”, or as the famous Irish saying goes, “Is the grass greener on the other side?” My summary of those thoughts are the focal point of my presentation.

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## **ACHIEVING SDG TARGETS IN PUBLIC HEALTH NUTRITION: IS SUDAN ON TRACK?**

**Prof. I. Bani, Emory University, USA**

**Dr. N. Eltoun, King Saud Bin Abdulaziz University for Health Sciences, KSA**

All United Nations Member States adopted the Sustainable Development Goals (SDGs), also known as the Global Goals, in 2015 as a universal call to act to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. The SDGs include several goals that relate directly to nutrition: SDG2 (zero hunger - food), SDG3 (good health and well-being - healthy life), and SDG12 (responsible consumption and production - sustainability). Other SDGs that are closely related to nutrition are SDG4 and SDG5 (quality education and gender equality in gender - education and health for girls and mothers, which is very important for infant health) and SDG13 (climate action). SDG3 is “good health and well-being”, which includes targets for child mortality, maternal mortality, and reducing chronic disease. This presentation discusses the role of public health nutrition in achieving the SDGs. It also examines whether Sudan is on track for achieving SDGs, and the role of nutrition education and advocacy. Also whether it is on track in fulfilling the knowledge and skills of health professional students in public health, and nutrition and dietetics competencies.

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## **SDG8/SDG3: ARTISANAL MINING IN SUDAN; A DEADLY WORK OPPORTUNITY THAT COULD BE MADE SAFER AND SUSTAINABLE**

**Dr. T.E. Mustafa, Global Medical Technology Ltd., UAE**

Artisanal and Small-scale Mining (ASM) is the number one growing work opportunity in Sudan. It plays a significant role in the country’s recovering economy but with it’s current status is associated with major occupational health, social, economic and environmental concerns. In Sudan, ASM provides livelihoods to an estimated 1.5 million workers and extends its effect to their families pushing this number to few millions directly or indirectly influenced by this growing work opportunity. The presentation will highlight these concerns and provide possible channels for mitigating them. It would educate decision makers, workers and businesses in this industry and help them achieve safe, descent and responsible work opportunities that provides the base for sustainable development. This paper is informed through

literature review and questionnaire to those working on the field. Raising awareness about the health, environmental risks, socioeconomic and employment challenges would help mitigate them and support the sustainable development goals.

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## **ROUTES TO THE LEGAL PROFESSION AND QUALIFICATIONS IN ENGLAND AND WALES**

**A.S.S. Ahmed, Solicitor & Notary Public, UK**

Embarking on a legal career in England and Wales can be, as with other jurisdictions, a lengthy and complicated process. There are many stages, spanning a period of several years, which need to be completed in order to become a qualified lawyer. The legal system of England and Wales is comprised of both common law and statute. The common law is created through decisions in the courts made by judges, who are trusted to follow previous decisions under the principle of *stare decisis* - legal precedent. The highest court is the UK Supreme Court, and its decisions are binding on all other courts. Statute is created via Acts of Parliament; the doctrine of parliamentary sovereignty stipulates that no institution is more powerful than Parliament. Lawyers in England and Wales can practice as either solicitors or barristers. The top solicitors are often Partners or Senior Partners in successful law firms, while the leading Barristers become QCs (Queen's Counsel) and Judges. This paper will show that becoming a solicitor or a barrister or member of the Judiciary in England in Wales takes great levels of commitment, a high intellect and a good work ethic. The benefits, both financially and personally, are rewarding.

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## **CITY OF KHARTOUM: STATUS QUO HAS LITTLE OR NO SCOPE FOR SUSTAINABLE DEVELOPMENT – AN INFRASTRUCTURE AND PLANNING PERSPECTIVE**

**K. Abdalla, North Lanarkshire Council, UK**

The aim of this paper is to review the performance of the City of Khartoum with regard to planning and transportation infrastructure. It is true that Cities have a major role to play in economic growth and can be a huge powerful force for Sustainable Development SD but only if they are well planned and their strategic infrastructure well managed. Good city planning attracts capital investments, encourages industry and manufacturing, facilitates easy transport and trading, invites businesses, drives job creation and increases access to broad spectrum of services. In its current shape, City of Khartoum has little or no scope for supporting the economic, environmental, social and cultural processes of achieving sustainable development. As the capital of Sudan the city's poor roads and transport infrastructure is a key bottleneck to the nation's development. Over the years Khartoum has witnessed no improvements in transportation performance in fact a gradual worsening on road conditions, increasing on vehicle trips, traffic volumes and congestions. The majority of roads within the city, with particular emphasis on junctions, are simply impenetrable. This is a true scenario for almost 20 hours of the day. The chaotic performance



and incompetence of the city planning and transport sector that is witnessed today and, over the years, within the capital Khartoum is simply a direct result of institutional failures and bad planning. The City cannot stand up for the challenge of implementing Millennium Development Goals MDGs and achieving SD targets. It's the unpleasant fact but heads cannot continue to be buried in the sand. In these current miserable roads and transport situation and, the day-to-day struggle by the people of Khartoum, urban planners, city infrastructure engineers and local authorities are required to proactively act and cannot simply sit back, relax and enjoy the ride.

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## **TEDx AND YOUTH ENGAGEMENT: SUDAN EXPERIENCE**

**Dr. A.F.A. Dafa-Alla, City College, Qatar**

Since the introduction of \*TEDx to Sudan in 2011, it has gotten lots of attention and engagement from believers of the power of ideas to transform communities. Sudanese in general welcomed TEDx and interacted positively with the international stage, based on number of attendees in thousands and the number of views on YouTube in hundred of thousands and in some cases over a million, especially youth who are eager and looking for opportunities to catch up with their peers in the world. Starting from TEDxYouth@Khartoum 2011, which was led by youth, organised by youth and hosted youth speakers from both gender, and discussed youth issues in their own language, to date, Sudanese youth are the majority of participants in these events. Issues vary from family issues to Education to Democracy to personal freedom to performances and arts were exhibited in a multidisciplinary manner which was unique to them in these events. Networks of students, volunteers, activists, artists, environmentalists and many more were formed out of these events. It became evident that the platform is an appropriate one for youth engagement and development. In this paper, As a founder of this movement in Sudan, I would like to give an overview of the past events that I was involved in, explain with examples how these events could empower Sudanese Youth, and discuss embedding these events into schools and universities extra circular activities. (\*TEDx = An independently organised event licensed by TED conferences LLC, in NYC).

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## **YALE-SUDAN PARTNERSHIP TO STRENGTHEN POST-GRADUATE PUBLIC HEALTH EDUCATION IN SUDAN**

**Dr. S. Hassan, Yale School of Medicine, USA**  
**Prof. I. Bani, Emory University, USA**

**Purpose:** The rise of non-communicable diseases, concurrent with infectious disease outbreaks poses a significant challenge to the Sudanese health system. To successfully address this challenge, we need qualified, expert, public health professionals. The purpose of this proposal is to strengthen public health education in Sudan through partnerships between leading academic institutions in the North and in Sudan. We will collaboratively develop and teach an innovative new curriculum focused on advanced applied public health methods to address the need for implementing evidence-based interventions to



improve health-related practice and policy. **Approach:** We establish an engaged partnership between faculty at the Yale School of Public Health (one of the leading institutions in implementation science and applied public health in the US and world-wide) with key universities in Sudan, the Ministry of Health, and Ministry of Higher Education. Using a stakeholder engaged approach, we develop a curriculum that builds on existing public health education curricula at partner Sudanese institutions. This will strengthen capacity specifically in applied public health - translating knowledge into practice and policy and evaluating its impact. **Added value:** The public health profession is often neglected by low-and-middle-income countries who rely on foreign expertise for guidance. This is the first comprehensive and equitable proposal to strengthen the capacity within Sudan for public health - the fundamental foundation for a strong, resilient and sustainable health system to improve the health of all in Sudan. **Practical Implications:** If successful, we will enhance knowledge/skills of participating faculty (short-term), build sustained institutional capacity for public health workforce development (medium-term), and ultimately improve health and well-being of the Sudanese people (long-term). Our value proposition is that genuine bidirectional learning/collaboration will be key to a successful and sustainable initiative. We will also create a model of collaboration that can be extended to additional institutions in Sudan.

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## **INNOVATIONS AND ENTREPRENEURSHIP TOWARDS BETTER HEALTH, SUPPORTING HEALTHCARE START-UPS: A NEW MOVEMENT TO ACCELERATE CURES IN SUDAN, THE MIDDLE EAST AND SUB-SAHARAN AFRICA**

**Dr. A. Homeida, University of Gezira, Sudan**

As a developing country, Sudan has just emerged from a protracted period of conflict that brought disaster on its people, both directly and indirectly. While some areas have witnessed war, others have suffered from the strain of hosting displaced populations. Furthermore, many places have been affected as a result of the diversion of resources meant for development. The Sudanese Medical Innovation Community (SMIC) is a new movement aiming to accelerate cure, change and empower access to health for all. The core concepts and practices of the SMIC extend well beyond the entrepreneurial environment to the most appropriate methods of medical businesses educational curricula. The founding value of SMIC is gratefulness and respect: respect for others, respect for both present and future generations, respect for the planet and for what it provides to us. Medical entrepreneurship is facing a huge need in targeted research and open databases, capacity development and platforms for sharing experiences. With some efforts already underway, we are trying to integrate SMIC components into the current medical schools' curricula at all levels of education and in all sectors and disciplines, including health professional education. Everyone should have the opportunity to benefit from high quality education, incorporating SMIC, to learn and appreciate the value and importance for entrepreneurship and innovation in health care and medicine. This supports the UN's sustainable development goals, especially the health themes that will directly affect any person's behaviour and lifestyle towards better health through medical education activities. This would be through supporting entrepreneurship in health care and Medicine for Sustainable Development (ESD) in Community-based Health professional education (CBHPE), and socially accountable educational methods. Our goal is to bring together the healthcare community, researchers, designers, IT professionals and entrepreneurs to facilitate the formation of new ideas and sustainable development for the healthcare industry. Through one of its hackathons - Startup Weekend Health - the



SMIC established more than 30 projects produced through wide interdisciplinary team members with different skill sets, including IT, finance, marketing, medicine and healthcare. We have now established the first university-based community in the MENA and sub-Saharan Africa region to support medical innovation and entrepreneurship among medical societies. We are here to fuel the spread of entrepreneurship in healthcare and the medical industry, influencing young doctors and medical field students, to support and guide them through the evidence-based data provided by the different researchers, professors, and open databases we provide to our medical entrepreneurs.

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## PROCESSING AND QUALITY OF LOW FAT ICE CREAM FROM CAMEL MILK USING NATURAL ADDITIVES FOR CONTRIBUTION AS FUNCTIONAL FOOD

A.S.M. Ahmed and Prof. I.E.M. El Zubeir, University of Khartoum, Sudan

**Purpose:** This study was designed to process ice cream from camel milk using natural additives (vanilla, coconut, gum Arabic and honey) in order to improve its taste and aroma. **Design/methodology/approach:** Three types of camel milk ice cream were tried using vanilla, coconut, and a combination of both. **Findings:** The successful processing of ice cream from camel milk indicated the possibility of using camel milk to produce special ice cream, which would fulfil the requirements of functional food. The quality and acceptability of the different types of ice cream were shown. **Originality/value of the paper:** Gum Arabic and honey as ice cream stabilisers and sweeteners, respectively, could be used in camel milk ice cream to strengthen the health benefit of camel milk and to satisfy special needs diets. **Research implications:** Further work should be done on the processing of camel milk using the available raw materials in Sudan for sustainable development.

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## PECULIARITY OF GOVERNANCE IN A TRANSITIONAL STAGE

Dr. W.A. Madibo, Sudan Policy Forum, Qatar

By creating an authoritarian mode of class and racial control, and enforcing structural impediments to women and youth socio-economic development, the Sudanese state has failed to be the premier embodiment of the unity of the people and the custodian of their hopes. Experience has shown that the system cannot be reformed only through appeals of moral suasion that the suppressed makes to the suppressor, nor is force a sufficient or viable alternative. *Using persuasive as well as coercive measures is necessary, but not sufficient.* To make governance dynamic in a transitional stage, key players need to revise policies that have a disproportionately higher effect on one group than upon others; they need to create a logical framework for the system to remain rational and humane; as well form a coalition of progressive forces and reformist demands that can support the development of practical solutions. *Resolving the dilemma of underdevelopment has more to do with changing our mind set than with changing our institutional setup.* Interpreting society precedes changing it. Making governance dynamic is facilitated by

our understanding of the moral philosophy with which society works: Is it 'economy of scale' or 'moral economy' that drives society? At what stage do political leaders decide to capture the periphery consumer market and with what means? As uprooting hegemony and exploitative economic relations remains the most viable option but the least favourable, at least so far.

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## **ASSESSMENT AND IDENTIFICATION OF GOLDPLAN 20 SP. INSECTICIDE ON SOIL BACTERIA**

**B.S.A. Mohammed and A.K.A. Elgaber, Research and Technical Development Center, Sudan**

This study aimed to determine the effect of Goldplan insecticide on soil bacteria and identify the most efficient Goldplan degrading bacteria. The soil was sampled from Shambat area, Khartoum state, Sudan. Analysed for the Chemical and physical properties. The soil was divided into 3 beakers with different concentrations of the above mentioned pesticide. The study revealed that Goldplan insecticide has a remarkable inhibiting effect on the growth of the soil bacteria according to the concentrations of the pesticide applied. The identified bacteria from the experiment was Bacillus sp.

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## **HUMAN TRAFFICKING IN SUDAN**

**S.H. Ibrahim, Paddington Development Trust, UK**  
**Prof. A. Ahmed, World Association for Sustainable Development, UK**

The aim of this talk is to recognise the causes, underlying the growth of human trafficking in the East Sudan Kassala State and the exploration on the social impacts of human trafficking using a deductive approach to formulate the hypothesis with the help of theoretical framework. Results have shown that there is a significant social impact on the life of the victims of human trafficking: this also affects society adversely. Human trafficking has become a concerning issue in recent perspective.

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## **CONNECT YOUTH WITH THEIR MOTHER LAND: IDEAS AND VISION**

**M.J.S. Idris, Tawasol Almogtaribat, KSA**

The importance of tying children of the Sudanese diaspora to their mother nation of Sudan cannot be understated. This paper argues that the most pressing reasons for this relationship include: creating identities of local belonging, gaining Sudanese social and religious values, and appreciating the beauty and worth of Sudan that they may feel pride in their origins and spread Sudanese culture abroad. Sudan is also in need of a relationship with the intellectual output, education, and cross-cultural competencies



offered by Sudanese raised abroad. Therefore, this paper puts forth the following methods for fostering this relationship: communication with diaspora via social media and advertising, offering summer classes to Sudanese diaspora, working with Sudanese families and communities abroad, and creating relationships with international organisations concerned with cultural and linguistic preservation.

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## AWARENESS OF SUSTAINABLE FOOD PRODUCTION AT GARY AREA, KHARTOUM-SUDAN

**S.A. Osman, Khartoum Refinery Company, Sudan**

**Purpose:** The study was conducted to assess the Scarcity of food supply, in Gary area, Khartoum State. Many suggestions were proposed to justify the reason of food shortage during last year's. The communities are farmers who rely on Agricultural production and decrease in crop production was observed in the last growing seasons. **Design/methodology:** field survey was conducted for data collection to cover six villages in the area (dabak, Elslate meldohm, wad ramly, Gari Elgar and elwadi elbiad. Data focused on the problems of food shortage and causes. The six villages were selected on the basis of geographical distribution from the largest water supplier (Nile River) and then from the vital areas, Khartoum Refinery, Free Zone, and Industrial Areas. **Findings:** problem of soil productivity was observed in some areas, huge use of fertilizers and shortage of financial support affected crop production. Failure to follow the agriculture cycle system, lack of adequate capital and funding, lack of manpower in the field of Agriculture were found the main factors of deterioration of Agricultural potential. The ownership of small projects such as dairy farms, poultry and nurseries to achieve the sustainable development; was suggested, attracting funding through microfinance or loans; and establishment for incentive policies was recommended. **Originality:** The issue of quantitative and qualitative deficits in agricultural products in the North Sea area, specifically the villages area, is important and affected the community and increase poverty. Therefore urgent measures should be implemented to support the small farmers in villages.

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## THE ROLE OF LEGISLATION, LAWS AND POLICIES IN THE FORMATION AND PROMOTION OF RESIDENTIAL NEIGHBOURHOODS

**Dr. N.I. Ahmed, National Center for Research, Sudan**

**Purpose:** Al-Sahafa City was considered to be one of the planned cities by the Ministry of Urban Planning in 1967. The population plan for citizens resulted in planning this city; it forms residential cells and characterised by types of housing. The situation today, with the increasing population and lack of implementation of building regulations, has led to problems in the design of the neighbourhood and its spaces. **Methodology:** This paper pursues field research in the form of observations of these problems. The fieldwork monitored and compared local standards with international standards, and looked at ways to solve the problems in the design aspects of the city. The paper touches on several axes: civilisation of land tenure methods, type and form of planning, its causes and quality, residential buildings, density,

urban growth and urban population behaviour, and what problems exist for the neighbourhood and its services. Information was gathered from relevant sources, the current situation was studied, and the research focused on the standards of general residential neighbourhood services and their relationship with individuals. **Findings:** The research found that the problems were identical to planning standards and their relationship to the non-application of laws, legislation, and urban planning regulations (most notably the 1997 law amending the Law of 2008). Problems also stemmed from the impact of human behaviour in the urban environment, and in design and planning. These included the type of tracks, and the arrangement of Stewing Khartoum city centre.

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## ROLE OF SMART DEVELOPMENT IN THE FUTURE OF NEW SUDAN

**R.M. Abdelrahman, Researcher in Sudanese Heritage, Sudan**

The smart development and its different targets act for promotion of popular tradition that is considered as a Sudanese nation identity as well as a public crafts and decorations besides music and songs and national festivals and habits. Sudanese legacy was well identified as a historical and civilisation symbols and identity which is considered as the most attractive touristic sites. Sudan geographical location in the centre of Africa indicates a well distinguished attractive site for tourists. Sudan is a country of both Niles rich with diverse capabilities like agriculture, industry and animal wealth.

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## ASSESSMENT OF APPLICATION OF COMPOSTED ORGANIC WASTE ON REMEDIATING CHROMIUM POLLUTED SOILS

**A.A. Hussein and Dr. A. Babiker, Omdurman Islamic University, Sudan**  
**Dr. S.A.M. Saad, National Center for Research, Sudan**

This study was done to assess the role of composted organic waste on remediating chromium polluted soil. Different concentrations of chromium solution were added to soil previously mixed with different rates of compost. Maize crop was used as test crop and planted in the treated soil. Phenotypic characteristics of the crop were monitored during the growing period. After harvesting chromium concentration was determined in soil and plant samples. Results revealed the decrease in chromium concentration and better crop growth in soils treated with high compost rate. Therefore, it was recommended that composted organic waste could be used on remediating polluted soils.

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## THE BEST USE OF SUDAN'S RESOURCES TO ACHIEVE ECONOMIC STABILITY AND THE SUSTAINABLE DEVELOPMENT GOALS

Dr. M. ElNair, Sudan University of Science & Technology  
and Almughtaribeen University, Sudan

**Purpose:** The purpose of this paper is to discuss Sudan's natural resources and appropriate ways and methods to use them optimally to achieve economic stability. This economic stability will lead to achievement of the sustainable development goals. The paper includes the currently applied economic policies and offers proposals to increase the country's revenue of foreign currency and imports replacement, depending on production and productivity. The paper also includes transferring technology and shifting towards a knowledge-based economy. **Conclusion:** The problem of Sudan's economy is not with its resources because Sudan has huge resources. However, the problem is in optimal employment of those resources; most of the available resources are not used and corruption is widespread. **Recommendation:** There is a need to reassess and evaluate economic liberalisation policy, exchange rate policies, privatisation of public sector enterprises, and the system of federal government.

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## STRUCTURAL CONTROL ON GOLD MINERALISATION REVEALED BY REMOTE SENSING AND GIS TECHNIQUES IN CENTRAL NORTH DARFUR STATE, WEST SUDAN

Dr. B.A.H. Hussein, National Centre for Research, Sudan  
Prof. K.A.E. Zeinelabdein, Al Neelain University, Sudan

**Purpose:** This research is focused on the structural controls on gold mineralisation in the central North Darfur State, west Sudan. The region is rich in its mineral resources; nevertheless, it lacks detailed geological studies for better understanding its potentiality. In addition to some security problems, its accessibility difficulties make the traditional field-based geological studies impossible. Accordingly, the main objectives of the present work are to utilise the means of remote sensing and GIS techniques, in addition to limited fieldwork, to determine structural controls on gold mineralisation through individual and integrated interpretations of multispectral data, and to develop a regional model of the structural geology and gold occurrences in the study area. **Methodology:** The study area comprises various geological units ranging from a Precambrian metamorphic complex (which has been extensively weathered and eroded), to Pleistocene rift filling unconsolidated sediments, volcanics, and several base metal occurrences. Landsat 7 ETM+ images were used, digitally processed and enhanced to recognise the hydrothermal alteration zoning that constitutes a significant remote sensing guide to gold mineralisation. **Findings:** Band ratio images disclosed the presence of several prospects that are now major gold deposits

at Kassab, Umm Gussa, Hashaba, Alagab, Gabr Elghnam, Kulkul, Dabatuga and Ortow areas. The geophysical data have also proved to be a valuable tool to understand the surface and subsurface structures. The structural orientation analysis has revealed four dominant lineament orientations in the area: N-S, E-W, NW-SE and NE-SW, which are consistent with the regional tectonics. The control on gold was assessed in terms of lithological as well as in terms of structural elements. Most of the gold occurrences were found variably in shear zones and sutures. The prominent NE trending fault, identified from the satellite gravity data, has apparently controlled the distribution of gold occurrence of the study area. Furthermore, most of the gold occurrences of the study area have shown an intimate association with interpreted high gravity zones and quartz veins. **Practical implications:** The results of the present work will have important implications for future gold exploration.

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## MANAGING EDUCATION IN THE CHANGING WORLD: REFLECTIONS AND LESSONS LEARNED FROM 30 YEARS' EXPERIENCE IN THE UK EDUCATION SYSTEMS

**B.A. Babikir, Rumi's Cave, UK**

My experience in the UK education field is through teaching, leading schools and as one of the founders of Muslim schools. As a representative of the association of Muslim schools UK. I was involved in the consultation for the 2014 national curriculum. Therefore, my talk will be about education, nurturing and the difference between them. I will also talk about the curriculum, syllabics and how can we use them to advance the learning, teaching in the troubled world we live in. It is said that knowledge is light, and it is the right of every human without exception, however we must remember if we abuse this light it will lead to a position of no benefit. In the holy Quran Allah (SW) said: Say (to them O Muhammad): "Can those who know and those who do not know ever be equal? However only people of understanding will pay heed." Surah: 39 Verse: 9 "And he to whom Allah shall not give light he has no light at all" Surah: 24 Verse: 40 In our Dua we call upon Allah and say: "O Allah we ask of your knowledge that will be benefiting to us and we seek refuge in you of knowledge that brings no benefit to us".

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## THE EFFECTS OF MERCURY USED IN TRADITIONAL GOLD MINING ON ENVIRONMENT AND HEALTH, A CASE OF RIVER NILE STATE SUDAN

**Dr. A.M.A. Ahmed, University of Gezira, Sudan**

**P. Purwanto and H.R. Sunoko, Diponegoro University, Indonesia**

On the discovery of gold reserves in 14 states in Sudan, traditional gold mining suddenly started to flourish and hundreds of thousands of laymen became engaged in gold extraction. The new source of revenue generation added much to the empty treasury and the loss in petroleum revenue due to cessation of the



south in 2011 could thus be compensated. Since gold extraction by artisanal and small-scale gold mining does not require much finance or advanced technology, it suited unskilled workers thus many young people found their way into the new business. Despite gold extraction's high revenues, the use of mercury in gold extraction poses much threat to the environment and general health of miners and the surrounding areas. The research tries to investigate the effects of traditional gold mining in Alebedia area, Berber Locality in the River Nile State. The investigation includes A) the effects of extraction methods on the environment and general health. B) the level of education and its distribution within the miners and how it affected the awareness of the miners about the dangers of mining activities. C) the period of stay that miners spend in the mining area and its contribution on the awareness about the dangers and diseases inflicted on the miners and D) the effects of the meteorological and topographical factors, the distribution and concentration of mercury in the area and their effects on the environment and general health. The research adopted the techniques of using random sampling and quantitative qualitative in addition to the analytical techniques. The research finally concluded that traditional gold mining has positive effects on the economic side and negative effects on the environment and general health.

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## MITIGATION OF FLASH FLOODS EFFECTS AT THE EASTERN NILE LOCALITY BY USING GIS

**M.S.A. Saeed, Sudan Meteorological Authority, Sudan**

In the last few years devastating flash floods descending downstream through valleys have occurred in East Nile Locality-Sudan. A flash flood can be caused by intense rain, particularly when it takes place in a saturated area where rain has previously fallen. Under these conditions the additional rain runs off over the surface and accumulates in streams and channels at a much accelerated pace. Runoff is one of the components consists of water cycle and useful water resources to stand human life. The aim of this study is to mitigate and flood control by establishing some of the projects. Soba, Haseeb and green Valleys (East Nile Locality, Khartoum, Sudan) have been selected as study area. To achieve this aim, the GIS had been used for estimating runoff. General impact for floods on residential and agricultural areas had been identified to establish dams to avoid destructive impacts of floods.

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## INTERNATIONAL CONVENTIONS, TREATIES AND RESOLUTIONS: SUPPORTING YOUTH ISSUES

**M.M.J. Rafay, Ministry of Agriculture Blue Nile State, Karmak, MC Scotland Organisation, Sudan**

**Purpose:** This paper looks at the definition of treaties, conventions and international resolutions supporting youth issues. It focuses on Resolution 1325 (supporting women in security and peace) and Resolution 2250 (supporting young people in security and decision-making and building peace). **Methodology:**

The paper asks what role these decisions play and how they should be used and developed to suit their situation in terms of policies, legislation, plans, projects and programmes in the country. **Findings:** The paper focused on Resolution 2250, which brought about a very important shift towards recognising the role of young people as elements of peace, involving them in the process of development, decision-making, policy development, decision support for youth issues, dialogue of the five participants, partnership, protection and prevention, disarmament and integration. Resolution 1325 resulted from increased reports of increased aggression. **Practical Implications:** The paper looks at providing opportunities for young people and young women between 18 and 30 years of age, without them needing a certificate of work experience. It helps them to make plans and develop educational and practical skills.

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## SMART MOBILITY FOR THE MASS

**W. Albasheer, INBOUND LLC - Dubai, UAE & Intuitio OU Tallinn, Estonia**

Public transport private shuttle transport agencies face several issues in today world such as demand/supply, route optimization, seat factor utilization, profitability and traffic jam issues. Utilization of IOT, Artificial Intelligence, we have development a platform to sort out these challenges in a practical approach. Identifying the seat demand per Pickup & Drop off location & Time we use Capacitated Vehicle Routing Problem Time Windows (CVRPTW) Algorithm from Census / GIS / Other Data source we are able to provide a machine learning model to develop the best route plan and trips schedule, use cases: Emirates Transport Emirates Airline Dubai Metro MOE School Transport.

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# DIASPORA 2019 CONFERENCE BIOGRAPHY

## G.A. Elashi, Heriott-Watt University, UK

**Ghada Ahmed Elashi** entered professional architectural practice since 2012, that started in Egypt as a landscape architect and currently as a lead architectural engineer based in Saudi Arabia. She was involved in variety of projects ranging from housing to hospitality projects located in the Middle East and Africa. In the fragmented construction industry several challenges face the efficient performance at delivering projects, to mitigate these challenges Ghada is part of management team responsible to structure work-flow systems, supervise design schemes and procure technologies relevant to context of operation. Academic research in parallel with practice affirmed her that decent settlements is a human right. Beside her career in the private sector she is dedicated to find solutions and methods to deliver adequate settlements to the urban poor and vulnerable. Ghada earned a Bachelor and Post graduate degree in Architectural engineering and environmental design and a Master degree in Architectural Project Management.

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## Dr. S.M.M. Kanani, Nile University, Sudan

**Dr. Salma Mohamed Mekki Kanani** is a medical doctor; she graduated from the Faculty of Medicine University of Khartoum in December 1994. She is currently a senior public health consultant and community medicine professor in several medical schools. Dr. Kanani has an MBBS in Medicine and Surgery (1994), an MSc in Public Health from the Netherlands School of Public Health (1998), majoring in maternal child health, and is a Fellow of the Sudan Medical Specialisation Board. She has worked with a number of NGOs, such as CARE International, Near East Foundation, and Goal, Sudan Family Planning Association. In 2002, Dr. Kanani became an Assistant Professor of Community Medicine (part-time) in

several medical schools, such as Nileen University, Africa International University, and University of Medical Sciences and Technology, and lately with Nile College. In 2000, she established Health World (HW), and through this executed projects such as KHATWA for women empowerment, and the Science for Action Association.

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### R. Alhaj, Queen Mary University of London, UK

**Rasha Alhaj** is an inventor, she discovered the substance in honey that inhibits the growth of breast cancer cells. She is founder of “The Amal Initiative”, a project to bring healing and hope to cancer patients. In 2015 Rasha received the Afrabia Afro-Arab Youth Award. She has a BSc in Biological Science from UAE University, an MSc in Chemical Pathology, from the University of Putra, Malaysia, and an MRes in Bioengineering from Imperial College London.

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### Dr. E. Abdelraheem, United Nations Development Programme (UNDP), Turkey

**Elfatih Abdelraheem** is HIV and Health Regional team leader for the Arab States, with 15 years of work experience with UNDP and other agencies at country and regional levels. Previously, he worked with UNAIDS and UNICEF in fighting HIV/AIDS. Elfatih provides support to country offices in the Arab States region of UNDP to strengthen the national HIV responses and advocacy for advancing the Human Rights of People Living with HIV. Elfatih’s expertise also includes advising governments on the Prevention and Control of Non-Communicable Diseases (NCDs) and tobacco control measures through designing and delivering multi-sectoral responses, addressing risk factors and complications. Elfatih is a medical doctor by training, has an MSc in Public Health (Epidemiology) and a Certificate in Blockchain Strategy. He is a PhD student at Walden University, Baltimore, expected to be awarded in 2020.

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### Dr. A. Elbireer, International Aids Vaccine Initiative (IAVI), UK

**Dr. Ali Elbireer** is a progressive, innovation-focused, and results-driven health executive with over 23 years’ experience in fostering strategic global partnership among private/public healthcare organisations in the USA/EU and Africa. He has also created sustainable knowledge-based systems for the development of medical diagnostics, academic research, and not-for-profit organisations. He created sustainable medical institutions in Africa and supported the development of international public health services, as well as diagnostics/preventive medicine, leadership education, quality patient care, and disease control in Africa, and created strategic partnerships with international professional and





funding networks, including organisations such as the WHO, CDC, USAID, UNAIDS, Gates Foundation, and the African Union (AU). Elbireer holds a MBA, and a PhD in healthcare administration from the USA. He has published several manuscripts in peer-reviewed journals on Medical Laboratory science and the quality of medical services in Sub-Saharan Africa.

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### **Dr. A. Abdelrazig, Ministry of Health, Sudan**

**Dr. Amani Abdelrazig** has an MSc in Health Education, from Gezira University, Sudan 2002, and a BSc in Family Science (Nutrition), School of Family Science, Ahfad University for Women, Sudan 1989. She is currently the focal person for a multisectoral action plan including risk factors (tobacco, unhealthy diet, physical inactivity and alcohol), NCDs Programme, at the Federal Ministry of Health, Sudan. Dr. Abdelrazig is a trainer and supervisor for the data collection of NCD risk factors for the STEPwise survey. She is also the focal person of the diabetes programme, and participates in all NCD activities, and a member of the SALAMAT medical charity, which is based in London and operates in Sudan. The aim of the charity is to transfer medical knowledge and experience to improve health services, and the advancement of medical education in Sudan.

TELEMEDICINE AND ITS APPLICATIONS IN LOW-INCOME COUNTRIES

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### **Dr. W.A. Bashari, University of Cambridge, UK**

**Waiel Bashari** is an Endocrinologist and Clinical Research Associate at the Institute of Metabolic Science, University of Cambridge, UK. Areas of expertise include: Clinical endocrinology; Clinical research; Molecular imaging technology; and Medical education. He earned MBBS in University of Khartoum; MRCP(Lond); MRCP(Endo); MSc Endo(QMUL); PhD Endo.

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### **Dr. F.A.E.M. Farah, Omdurman Islamic University, Sudan**

**Dr. Fadwa Abu Elhassan Mohamed Farah** has a PhD in Business Administration from Omdurman Islamic University, Sudan. She is currently an Assistant Professor of business administration at Omdurman Islamic University. Previously, Dr. Abu Elhassan was Assistant Dean at the College of Administrative Sciences (Females Section), Omdurman University. She has published her research in local and international scientific journals, has participated in many national and international conferences, and is a member of a number of scientific societies and committees.

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### Dr. M.E. Abdalla, University of Sharjah, UAE

**Dr. Mohamed Elhassan Abdalla** is an Assistant Professor of Medical Education at the College of Medicine, and Director of the Medical Education Center, University of Sharjah, UAE. He is also a Fellow of the Academy of Medical Educators, UK, Chairperson of the Group on Social Accountability, and the Association of Medical Education in the Eastern Mediterranean Region. Dr. Abdalla is a Member of the International Reference Group on Social Accountability of Medical Schools, and Co-Chair of the task-force on Social Accountability and Accreditation, The Network-TUFH. His research interests lie in social accountability, accreditation, assessment, and cost and value; he has published widely in these areas.

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### H.I. Sulieman, Qatar Rail Company, Qatar

**Hashim Ibnauf Sulieman** is a founder of the SUDT (Sudan Urban Development Think Tank), which is today a 150 member group continuing a strong partnership with the new government, UNDP and many ground up initiatives and other think tanks.

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### Dr. H. Eldosougi, NHS Global Digital Exemplar Evaluation Program and Digital Academy, USA

**Dr. Huda Eldosougi** has a BSc in Agriculture & Natural Resources and an MSc in Pharmacognosy from Khartoum University, Sudan. She has an MSc in Quality, Safety, Informatics and Leadership from Harvard Medical School, Boston, USA and a PhD in Biomedical Informatics from Rutgers University, USA. Her interests lie in health equity, health system assessment, health payment models, health information management, e-health innovations, integration of healthcare services, quality and safety improvement in clinical pathways and operational processes, and data science, with on health system mapping, evaluation, planning; solutions for clinical and operational health services; healthcare informatics for safety quality efficiency and population health research and digital transformation. She is currently a visiting scientist for the NHS Global Digital Exemplar Evaluation Program and Digital Academy, and has her own company as a health service consultant. As a volunteer, her passion is to leapfrog Sudan and help it recover.

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### Prof. S.E.A. Mohammed, National Center for Research, Sudan

**Seif Eldin A. Mohammed** has a BSc from the Faculty of Agriculture, Department of crop protection, University of Khartoum in 1993, and MSc Entomology, 1998. He has a PhD from the Sudan Academy of Sciences 2008, Apiculture, and a post-doctorate 2009/2010 ICCBS, University of Karachi, Pakistan,



Biochemistry. Professor Mohammed was a visiting researcher 2015/2017 at King Saud University, Saudi Arabia. He has been working at the National Center for Research since 1993. He has published more than 30 papers in ISI journals, and has supervised approximately 30 students for MSc and PhD. Professor Mohammed has presented more than 20 papers at local and international conferences, and has contributed to NGO programmes in capacity building for more than 800 beekeepers in Sudan and other countries.

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### **R. Elhussien, UNESCO COUSTEAU Ecotechnie Chair, Sudan**

**Reem Elhussien** is graduated from Khartoum University in 2014 with a BSc in Zoology, with a major in Ecology. She worked as a volunteer with the Sudanese Red Crescent Society for two years from 2011 to 2013. Elhussien obtained an MSc in Environmental Resource Management from Brandenburg University of Technology in 2018. Her interests lie in climate change, sustainable development, and migration studies.

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### **Dr. O. Elfiel, Arab Bank for Economic Development in Africa, Sudan**

**Dr. Osman Elfiel** has a BSc (Hons) in Civil Engineering, Faculty of Engineering, University of Khartoum, and a PhD in Structures, Institute of Applied Sciences, Toulouse, France. Lecturer in the Faculty of Engineering, University of Khartoum: 1985 to 1989. He is currently Advisor to the Director General of BADEA in charge of operations (Arab Bank for Economic Development in Africa) having previous work experience as an Advisor to the President, Islamic Development Bank Group, a project office with the Islamic Development Bank, and a Project Officer: Arab Bank for Economic Development in Africa. His interests lie in development projects cycle management, financial and human resources management.

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### **Dr. H. Mirghani, Islamic Development Bank, KSA**

**Dr. Hisham Mirghani** has a BSc in Civil Engineering, University of Bristol, an MA in Law and a PhD in Private Law, International University of Africa. He has 24 years' experience in the Engineering Consultancy field, four in the UK and twenty in Sudan. Dr. Mirghani previously worked as the Contracts Manager in the Dams Implementation Unit in Sudan, and currently works at the Islamic Development Bank in Jeddah in the Project Procurement Division.

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## Dr. T.E. Mustafa, Global Medical Technology Ltd, UAE

**Dr. Tayseer Elfaki Mustafa** is the CEO for GMT Ltd UK and Consultant Occupational Health Physician. She worked as GMC UK Appraiser, Clinical SAS tutor and national SAS Lead for the Faculty of Medical Leadership and Management in the UK. She graduated from the University of Khartoum and has 30 years expertise in medicine in the UK, 17 years of which has been in occupational medicine, healthcare management and leadership training. She has been the subject matter expert for companies such as the BBC, Virgin Trains, and Balfour Beatty. She is assistant editor for the *A Guide to Occupational Health and Safety for Entrepreneurs, Owners and Managers* (now ICOH owned). Dr. Tayseer has recently relocated to the UAE where she established two occupational health departments and contributed to the re-activation of the Emirate Society of Occupational Medicine.

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## R. Faysal, British Gas, UK

**Reem Faysal** is a Fellow Chartered CIPD, has a BSc in Economics and Social Sciences, University of Khartoum, and an MSc in Humans Resources Management from the University of Bedfordshire. She has over 20 years of experience in the talent and leadership development arena, locally, regionally and internationally, and is the Founder of the Sudanese Human Resources Management Society. Faysal is currently residing in the UK, working as Head of Talent & Leadership Programme Manager, BP.

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## S. Idriss, Saudi Investment Bank, KSA

**Salah Idriss** is a seasoned banking and management expert who worked across different local and international banks in Sudan and in the Gulf region, moving from commercial to investment. He is currently Head of Strategy and Transactional Banking at the Saudi Investment Bank. A graduate of Banking and Finance studies, coupled with higher education in Project Management from the University of Liverpool, UK.

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## K. Ahmed, Sudanese Human Resources Management Society, Sudan

**Kawthar Ahmed** has an MBA in HR Management, and a BSc in Philosophy from Neele University, and has 12 years' experience across different organisations. She managed and ran the first career fair in Sudan in 2009, and is currently a board member of The Sudanese HR Management Society, and HR Manager at Algam Drugs & Chemicals company.

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### Dr. S.M. Ismail, Federal Ministry of Health, Sudan

**Salwa Muddthir Ismail**, MSC, BCs, is the TB/HIV Coordinator, Sudan National AIDS Control Program, Federal Ministry of Health, Khartoum, Sudan, and PhD Student, Faculty of Economics and Administration, University of Malaya, Kuala Lumpur, Malaysia.

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### Dr. A.A. Eisa, University of Medical Science and Technology, Khartoum, Sudan

**Ammar Abobakre Eisa**, MD, MBBS, is an Associate Professor, Faculty of Medicine, University of Medical Science and Technology, Khartoum, Sudan.

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### Dr. F. Ibrahim, University of Medical Science and Technology, Khartoum, Sudan

**Faisal Ibrahim**, MD, MBBS, is a Professor, Faculty of Medicine, University of Medical Science and Technology, Khartoum, Sudan.

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### Dr. S.A.M. Saad, National Center for Research, Sudan

**Dr. Sarra Ahmed Mohamed Saad** was awarded a PhD in Soil Science in 2002 from the University of Goettingen, Germany. She was graduated from the Faculty of Agriculture, University of Khartoum, majoring in Soil Science. Dr. Saad was appointed to the National Center for Research, Department of Environment in 1992, and currently works as senior researcher of Soil Science. She has led many research projects dealing with the problems of food security, soil productivity and climate change, in addition to organic farming and its applications in Sudan. She is a member of many scientific societies inside and outside Sudan, and has been awarded prizes for scientific achievements in Sudan. Dr. Saad has supervised many postgraduate students at the MSc and PhD levels, and has offered consultancy to governmental and private sectors about organic food production and fertilisation strategies, especially in non-fertile soils.

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### M.M. Idris, University College London, UK

**Maimanah M. Idris** holds a BSc (Hons) in Geography and Environmental Management, an MSc in Environmental Technology: Health and Global Environment, and an MRes in Urban Sustainability & Resilience. Her research interests are participatory tools and stakeholder engagement initiatives in

community-level WASH projects, as well as urban/rural farming projects in Africa, Asia and the Middle East. She currently works at Imperial College London, in the School of Public Health. In the past, she has worked for environmental NGOs in the UK and Malaysia, and has also worked for a supply chain and training consultancy in Khartoum, Sudan.

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### S.-C. Tsai, University College London, UK

**Shun-chan Tsai** holds a BSc (Hons) in Geography, an MSc in Climate Change, and an MRes in Urban Sustainability & Resilience. He is currently a PhD student at the Department of Geography, University College London. He specialises in flood and catastrophe modelling, and has experience in flood consultancy and flood management research projects. He has completed internships at Mott MacDonald UK and CPC Corporation Taiwan.

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### Y. Jin, University College London, UK

**Yixuan Jin** holds a BSc in Construction Management, an MSc in Informatics, and an MRes in Urban Sustainability & Resilience. She is currently a PhD student at the Hong Kong Polytechnic University. Her research focus is building construction technology, and she has worked as an Engineer's Assistant at China's Water Resources & Hydropower Construction Engineering Consulting and PowerChina Guiyang Engineering Corporation Limited, China.

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### H.E. Khogly, Sudan Meteorological Authority, Sudan

**Haitham Elsiddig Khogly** is a meteorologist with a BSc from Sudan University of Science and Technology (Mathematics) 2004, and a post-graduate Diploma in Meteorology from the University of Khartoum, 2011. He joined the Sudan Meteorological Authority as Meteorologist in 2009 and has participated in many workshops and International work training courses (climate domain).

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### Dr. A.M. Aliraqi, King Saud University, KSA

**Ali Mohamed Aliraqi** is an Associate Professor of Economics at King Saud University, Saudi Arabia. His interests are in development, the creative economy, poverty and tourism. He has published many books and articles in peer reviewed journals.

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## A.B.G. Mohammed, Chinese Academy of Sciences, China

**Abutalib Balla Guma Mohammed** was awarded a BSc in Soil Science from the Faculty of Agriculture, University of Khartoum, and an MSc in Desertification Science in 2008 from the University of Khartoum, Sudan. He was appointed to the National Center for Research (NCR), Department of Environment & Environmental Pollution research studies in 2004, and currently works as a researcher of soil science. Mohammed has participated in many research projects dealing with problem of climate change, soil quality and productivity, soil carbon dioxide fluxes and silicone dioxide as soil ameliorate. He is a member of many scientific societies inside and outside Sudan, and has completed many scientific courses related to his research interests (e.g., in food security, climate change, geographical information systems and remote sensing and integrated agricultural management) in Turkey, Germany and China.

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## Dr. S.A.M. Saad, National Center for Research, Sudan

**Dr. Sarra Ahmed Mohamed Saad** was awarded a PhD in Soil Science in 2002 from the University of Goettingen, Germany. She was graduated from the Faculty of Agriculture, University of Khartoum, majoring in Soil Science. Dr. Saad was appointed to the National Center for Research, Department of Environment in 1992, and currently works as senior researcher of Soil Science. She has led many research projects dealing with the problems of food security, soil productivity and climate change, in addition to organic farming and its applications in Sudan. She is a member of many scientific societies inside and outside Sudan, and has been awarded prizes for scientific achievements in Sudan. Dr. Saad has supervised many postgraduate students at the MSc and PhD levels, and has offered consultancy to governmental and private sectors about organic food production and fertilisation strategies, especially in non-fertile soils.

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## Y.S.A. Mohamed, Ministry of Mining and Energy, Sudan

**Yaser Salaheldeen Ahmed Mohamed** has a BSc in Mineral Wealth from the School of Applied Earth Sciences, Faculty of Science and Technology, AL Neelain University, and an MSc in Economic Geology from the Faculty of Science, University of Khartoum.

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## Dr. A.A.M. Elnour, International Islamic University, Malaysia and University of Kordofan, Sudan

**Dr. Ahmed A.M. Elnour** has a BSc in Biochemistry and Food Science from the University of Kordofan (2003), an MSc in Gum Chemistry from the University of Khartoum, Sudan, and a PhD in Biotechnology Engineering from IIUM, Faculty of Engineering. He was previously Head of the Department of Bio-

chemistry and Gum Processing at the Institute of Gum Arabic & Desertification Studies, University of Kordofan, Sudan. He is a visiting lecturer of Biochemistry and Molecular biology at Western Kordofan University, Faculty of Veterinary Science, Sudan. He is the author or co-author of numerous publications, and has several publications and patents under review in high impact factor journals. <https://scholar.google.com/citations?user=undo98wAAAAJ&hl=en>

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### Dr. M.E.S. Mirghani, International Islamic University, Malaysia

**Dr. Mohamed E.S. Mirghani** completed his first degree in Biochemistry at Cairo University, Egypt, and then worked as a quality control inspector at the Sudanese Standards & Metrology Organisation (SSMO). He is linked to the University of Gezira where he conducted an MSc in Applied Chemistry and Chemical Technology at the Faculty of Engineering and Technology. He completed his doctorate in food chemistry and biochemistry at University Putra Malaysia (UPM) in 2002, and then joined IIUM for more than 14 years; he also worked at the International Institute for Halal Research and Training (INHART). Dr. Mirghani has many collaborations in research with national and international research groups in Sudan, Malaysia, Canada and KSA, and has been a full member of the American Oil Chemists' Society (AOCS) since 2000. Dr. Mirghani has many publications in international journals: <https://scholar.google.com.my/citations?user=6shVgUAAAAJ&hl=en>

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### Dr. N.A. Kabbashi, International Islamic University, Malaysia

**Dr. Nasreldin A. Kabbashi** is a Professor and a member of the Bioenvironmental Engineering Research Centre (BERC), Faculty of Engineering at IIUM, and a member of staff at the Department of Biotechnology Engineering. He obtained his BSc from Gezira University, Sudan in 1989, and an MSc in Chemical & Environmental Engineering from Universiti Putra Malaysia (UPM) in 1998. He earned a PhD in Chemical & Environmental Engineering from Universiti Putra Malaysia (UPM) in 2002. He is a highly qualified senior professional engineering professor with over 17 years' of experience. He has proficiency in managing start-up projects and teams, and sector planning spearheading operations based on a service excellence model, best practices and benchmarks. Dr. Kabbashi has numerous high quality journal papers, with a large number of citations every year with high h-index, at Scopus Database.

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### Dr. Md.Z. Alam, International Islamic University, Malaysia

**Dr. Md. Zahangir Alam** is a Professor and Chair of BERC, Faculty of Engineering at IIUM, and was Head of the Department of Biotechnology Engineering from 2009 to 2012. He received his BSc in Chemical Engineering from Bangladesh University in 1996, and obtained an MSc in Chemical Engineering from UKM in 1999. He earned a PhD in Biochemical Engineering from UPM in 2002. Prof. Alam has 20 years of



teaching and research experience, and has authored and co-authored some 500 publications. With the high quality of the journal papers, a large number of citations (about 3,000) are being cited every year with high h-index, 31 at Scopus Database: <https://scholar.google.com/citations?user=0FUVN0AAAA-J&hl=en>

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#### **D. Daddiouaissa, International Islamic University, Malaysia**

**Dr. Djabir Daddiouaissa** has a BSc in Developmental Biology and an MSc in Cellular and Functional Neurobiology from University of Sciences and Technology HouariBoumedien, Algeria, and a PhD in Biotechnology Engineering from International Islamic University Malaysia. He is currently a Graduate Research Assistant for the Research Initiative Grant Scheme at the International Institute for Halal Research and Training (IIUM). He has published many papers on the anti-cancer effect of plant-based products, metabolomics study of cancer lines, and an acute toxicity study of the plant compounds on zebrafish developing embryos.

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#### **Dr. K.H. Musa, Qassim University, UAE**

**Dr. Khalid Hamid Musa** received a BSc (Honours) in Biochemistry and Food Sciences from the University of Khartoum, Sudan in 1998, and an MSc and PhD in Food Science from UKM, Malaysia in 2003 and 2010, respectively. In 1998, he joined the Sudanese Standards and Metrology Organisation (SSMO), as a food chemist. From 2001 to 2010, he was a graduate research assistant at UKM. Since November 2010, he has been with the Food Science Program, Faculty of Science and Technology, UKM. He joined the Department of Food Science and Human Nutrition, Faculty of Agriculture and Veterinary Sciences at Qassim University, Saudi Arabia in 2016. He has published more than 40 scientific papers as in the link: <https://scholar.google.com/citations?user=CIjEWbwAAAAJ&hl=en>

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#### **Dr. N.H. Abdurahman, Universiti Malaysia Pahang Gambang, Malaysia**

**Dr. Nour Hamid Abdurahman** received BSc (Honours) in Petroleum Engineering from the Faculty of Petroleum, University of Al Fateh, Libya, in 1994, an MSc in UPM in 2001, and a further MSc in Oil & Gas Technology from Aalborg University, Denmark in 2003. He received a PhD degree in Petroleum (transportation of crude oil in pipelines and emulsion technology) from the Faculty of Chemical & Natural Resources Engineering, University Technology Malaysia (UTM) in 2006. In March 2007, he joined UMP as a visiting lecturer. He became an associate professor in 2009, and a full professor in 2014 from the same University. He was appointed as Deputy Dean (R&D) from 2012–2016. He has published more than 650 scientific papers and chapters in books, as described in the link: <https://scholar.google.com.my/citations?user=ex3axJMAAAAJ&hl=en>

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### Dr. A.-R. Suliman, Almulla Advocacy and Consultancy, UAE

**Dr. Abdel-Rahman Suliman** has a PhD in Sharia and Law, with a major in Comparative Law. He is a legal expert, dispute settlement consultant, legal trainer, member of the Board of Trustees Waqf Bureau Sudan, member of the Sudanese Bar Association and Emirates Association of Lawyers, Member of the Association of Legal Consultants Egypt, Lecturer collaborating with a number of universities inside and outside Sudan/Judicial Department/International Islamic Waqf Institute – Malaysia IIW, and Director of Lawyers Affairs Department at the Judicial Department – Abu Dhabi. Prof. Suliman has practical experience in supporting the community, he has prepared and supervised campaigns to revive the SUNNAT of Waqf in the UAE (2006), national Waqf, Sudan (2010), and state Waqf, Sudan (2012). He is a former volunteer at the Red Crescent Authority, Abu Dhabi, 1996–2000, and member and founder of the Council for the Promotion of Economic Partnership between Sudan and the UAE.

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### Dr. M.A.M. Ahmed, Mayamin Company, Sudan

**Dr. Mona Ali Mostafa Ahmed** earned a Bachelor of Art and Education in Geographic, a Master degree in Geographic, University of Khartoum and a PhD in Environmental Science, University of Khartoum, former lecturer at the University of Qassim, KSA. She is working in the field of Environmental Impact studies and also in the field of Environmental quality studies for industrial projects.

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### Dr. A. Bakhiet, National Research Council, Sudan

**Dr. Arig Bakhiet** is Sudanese engineer trained in Energy, environment and climate change. She has a PhD in Energy Technology from TU Dresden, Germany.

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### M.A.K. Ibrahim, Westminster and Kensington & Chelsea Council, UK

**Manni Abdel Karim Ibrahim** has a BSc in Media Society. He has several years' of experience as a Primary School Teacher, Mentor for Young people, Youth Family and Community engagement. He has worked for a number of Local Authorities across London, as well as community groups, organisations and charities. He has a passion for facilitating motivational as well as educational workshops/conferences/speeches, covering a variety of contemporary issues in regards to young people's family inter-faith groups and Afro-Heritage History and Culture. His main ethos is to promote and facilitate community cohesion through dialogue, engagement and knowledge. He is the principle organiser of the Salamat Festival – one of his proudest achievements to date.

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## Prof. I. Bani, Emory University, USA

**Dr. Ibrahim Bani** has a BSc in Medicine and Surgery from Khartoum Medical School, Sudan, and a PhD in Human Nutrition, University of Surrey, UK. He is a Community physician with extensive experience in International public health, epidemiology, preventive and community medicine, health and development for developing countries. Prof. Bani is a public health physician by training with over 15 years' experience in International Public Health. He has participated in many national training programmes sponsored by WHO, USAID, and national governments of Saudi Arabia, Sudan and Iraq. Dr. Bani is currently an adjunct Professor at Global Health Department, Rollins School of Public Health Emory University, USA, and Professor and Chairperson Community Medicine and Health Care, Faculty of Medicine at Al-qunfudah, Umm Alqura University, Saudi Arabia. Dr. Bani's international experience is also extensive, including association with the Micronutrient Initiative (MI), World Bank, WHO, UNICEF, USAID, WFP and UN Humanitarian Mission. He has recently joined a WHO consultative group for developing Public Health Leadership and Networking.

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## Dr. N. Eltoum, King Saud Bin Abdulaziz University for Health Sciences, KSA

**Dr. Nagat Eltoum** is a lecturer at King Saud Bin Abdul Aziz University for Health Sciences. Jeddah, Saudi Arabia. She received her PhD in Nutrition from the School of Health Sciences, Ahfad University for Women, Sudan. She served as Clinical Dietitian at King Abdulaziz University Hospital, Jeddah, Saudi Arabia. After receiving her Master's degree in Human Nutrition from Ahfad University for Women, Sudan, she returned to Saudi Arabia and worked as a Clinical dietitian with emphasis on paediatrics at King Abdulaziz Medical City, National Guard Health Affairs. Her interest in diabetes led her to become a certified diabetes educator. Furthermore she explored the effect of Ramadan Fasting on Saudi Diabetic Adolescents in her PhD thesis. Dr. Eltoum has presented papers at national and international nutrition and nutrition related conferences and activities.

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## Dr. T.E. Mustafa, Global Medical Technology Ltd., UAE

**Dr. Tayseer Elfaki Mustafa** is the CEO for GMT Ltd UK and Consultant Occupational health Physician. She worked as GMC UK Appraiser, Clinical SAS tutor and national SAS Lead for the Faculty of Medical Leadership and Management in the UK. She graduated from the University of Khartoum and was trained at the UK with 30 years expertise in medicine in the UK, 17 years of which is in Occupational medicine, healthcare Management and leadership training. She has been the subject matter expert for companies like the BBC, Virgin Trains, Belfour Beatty, Amy, Marshall Airport, Government & Local authority departments. She is assistant editor for the Guide to Occupational Health and safety for managers and supervisors for Enterprises in developing countries (now ICOH owned). Dr. Tayseer relocated to the UAE recently where she established 2 OH departments and contributed to the reactivation of the Emirate Society of Occupational Medicine.

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## A.S.S. Ahmed, Solicitor & Notary Public, UK

**Abdul Salam Seid Ahmed** is originally from Sudan and came to the UK in 1989 as a young student. He completed his LLB in 1995 and postgraduate diploma in 1997. He qualified as solicitor in 2000 and set up his own firm. Seid Ahmed then completed his LLM from the University of London. Seid also completed a postgraduate diploma at the University of Cambridge, following which he became a registered Notary Public. Seid Ahmed was the first Arabic speaking Notary Public to register in the UK. Seid Ahmed is a keen public speaking solicitor who has delivered lectures in various International conferences and lectured at the Sudanese judicial training college.

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## K. Abdalla, North Lanarkshire Council, UK

**Khalid Abdalla** is an accredited Project Management and Transportation Professional who regularly works within wider Multi-Disciplinary Design Teams, Consulting Engineers, Developers, and Construction Professionals and has particular strength in Stakeholder Management and Client Representation. He has 22 years post graduate experience in the industry working for both public and private sectors. He is currently a Project Manager on a wide range of infrastructure, roads and transport-related projects at both Planning and Construction Approval levels. Khalid is familiar with the requirements, expectations and approaches of local authority Transportation Departments and those of Department of Transport. He has working knowledge of UK local and national transportation policies/guidelines including the Traffic Signs Regulations and General Directions TSRGD, Road Traffic Regulation Act 1984, Design Manual for Roads and Bridges DMRB, Manual of Contract Documents for Highway Works MCHW, Designing Streets, National Roads Development Guide NRDG, Transport Assessment Guidelines and the National Planning Policy Framework NPPF. Khalid has significant experience of reviewing Transportation Assessments that include Trip Generation and Forecasting, Network Impact Assessment, Accessibility Analysis as well as offering Technical Commentary, Input and Appraisals on Developments Layout. His experience also includes reviewing Road Safety Audits RSAs, Traffic Management Plans and identifying Improvements to the Local Road Network. Successful projects Khalid has been involved in include Infrastructure, Roads, Bridges, Industrial Estates, Governmental and Educational Buildings, Housing and Hotels. Khalid's Research areas are Financing Infrastructure Projects in Developing Countries and Project Management Emotional Intelligence, Leadership and Soft Competencies. BSc (Honours) MSc Construction Project Management MCIHT

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## Dr. A.F.A. Dafa-Alla, City College, Qatar

**Anwar Fatihelrahman Ahmed Dafa-Alla** has received his PhD in Computer Science in 2010 from Chungbuk National University in South Korea where he first joined the TED/TEDx community. He has voluntarily translated more than 1550 TEDTalks into Arabic and serves as Arabic language coordi-





nator at TED conferences. Anwar has introduced TEDx to Sudan in 2011. Ever since, he has organised more than 15 TEDx events including TEDxKhartoum, TEDxYouth@Khartoum and TEDxOmdurman. Putting more than 50 Sudanese speakers on the global stage. He gave a TEDTalk at TEDGlobal 2012. He spoke at different TEDx events around the world in Seoul, Amsterdam, Berlin, Washington DC, Boston and Jeddah. Anwar has represented the TED translators and TEDx Organisers in the interview by Charlie Rose in New York for TED 60 Minutes “On 60 Minutes, the impact of TED Talks”. He is a restless, a multi-potentialite and a huge lover to Sudan. He currently organises TEDxAISadd in Doha, where he lives and works at City College as a head of Computing department.

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### Dr. S. Hassan, Yale School of Medicine, USA

**Dr. Saria Hassan** is faculty in Internal Medicine and Pediatrics at the Yale School of Medicine. She obtained her B.Sc. degree from the Massachusetts Institute of Technology and her medical degree from Harvard Medical School. She then trained at the Yale School of Medicine and is certified as an Internist and Pediatrician. As a physician scientist at Yale, Dr. Hassan currently provides clinical care, teaches students and residents, and conducts research. Her research interest is in using Implementation Science (the translation of evidence into practice and policy) to reduce the burden of non-communicable diseases world-wide. Dr. Hassan has ongoing research projects in the Caribbean and in Sub-Saharan Africa. She works in a multi-disciplinary team bringing together the schools of medicine, public health, management, and policy. Dr. Hassan is also invested in strengthening capacity for applied public health to build health systems that can face the growing burden of NCDs in low-and-middle income countries. She is currently leveraging collaborations with institutions in Sudan to strengthen graduate public health education so as to ensure a cadre of high quality public health professionals that are essential to improving our health system. MD Harvard Medical School

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### Prof. I. Bani, Emory University, USA

**Dr. Ibrahim Bani** is a Community physician with extensive experience in international public health, epidemiology, preventive and community medicine, health and development for developing countries. Professor Bani is a public health physician by training with over fifteen years of experience in International Public Health. His teaching experience is extensive, including faculty appointments as an Assistant and Associate Professor (Community Health) at King Saud University, and as a lecturer at Gazera Medical School, which is internationally recognised for its innovative community based training. During his tenure at those academic institutions, he participated in many national training programs sponsored by WHO, USAID, and national governments of Saudi Arabia and Sudan and Iraq. In addition, he also worked as an adjunct Professor at the International Health Department at George Washington University, USA and visiting Professor /Community Health at the American University Bei-

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rut. Currently Dr. Bani is an adjunct Professor at Global Health Department, Rollins School of Public Health Emory University, USA, and Professor and Chairperson Community Medicine and Health Care, Faculty of Medicine at Al-qunfudah, Umm Alqura University, Saudi Arabia. He was the ex-Associate Dean for Research and Graduate Studies Faculty of Medicine (a community oriented medical school), Jazan University, Saudi Arabia. Dr. Bani is the member of Editorial Board for Tropical Medicine Reports Journal and Food and Nutrition Disorders Journal and reviewer of Saudi Medical Journal and Saudi Family and Community Medicine Journal. Dr. Bani International experience is also extensive, including association with the Micronutrient Initiative (MI), World Bank, WHO, UNICEF, USAID, WFP and UN Humanitarian Mission. During his association with United Nations as International Health Observer, he monitored and evaluated ongoing health programs in Iraq. During and after the recent Iraq war, Dr. Bani was the epidemiologist for South Iraq. He also worked with WHO as a consultant to evaluate regional management training programs in the Middle East and North Africa Region, and recently joined a WHO consultative group for developing Public Health Leadership and Networking. He has been a Professional Associate with the Institute of International Programs (Johns Hopkins School of Public Health) as a technical reviewer to assess Child Survival Programs funded by USAID. He was also been associated with UNHCR, to evaluate Health Manpower Needs for Ethiopian Refugee Camps in Sudan.

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### Dr. A. Homeida, University of Gezira, Sudan

**Dr. Anmar Homeida** is a medical graduate with an MSc in Health Professionals Education. He is the Executive Director of the Sudanese Medical Innovation Community in the medical education development and research centre, Faculty of Medicine, University of Gezira. He is also the organiser and the facilitator of Startup Weekend Health, working since 2016 in the field of innovation and entrepreneurship in healthcare and medicine.

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### Prof. I.E.M. El Zubeir, University of Khartoum, Sudan

**Ibtisam E.M. El Zubeir** graduated from the Faculty of Veterinary Science; University of Khartoum, Sudan 1989, and then joined the Ministry of Animal Resources as a Veterinary officer 1990–1996. After being awarded a PhD, she was appointed as Assistant Professor at the Department of Dairy Production, Faculty of Animal Production, promoted to Associate Professor in 2005 and to full Professor in 2010. Prof. El Zubeir was involved in teaching and supervision for undergraduate and postgraduate students from the Faculty of Animal Production and Faculty of Veterinary Medicine in subjects related to dairy production and milk hygiene and quality. Her research interests are in hygiene and quality control of milk and dairy products, with special interest in camel milk and its products. She has published about 126 scientific papers in national and international journals, and has participated in more than 50 national and international conferences.

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### Dr. W.A. Madibo, Sudan Policy Forum, Qatar

**Waleed A Madibo** Senior Governance and International Development Expert with over two decades of experience encompassing a scientific background in civil and environmental engineering combined with 7 years' executive leadership of a highly successful non-government organisation and more recent achievements in consultative support to the Qatari Ministry of Development Planning and Statistics. Offers nuanced comprehension of governance issues from both conceptual and operational perspectives, earned through academic teaching and professional teaching, extensive consultations as well as full-scale project management. Brings significantly advanced expertise in strengthening strategic planning capabilities, driving enhanced policy responses, supporting ongoing institutional development and ensuring some level of reciprocity between top-down and bottom-up approaches. Possesses a vast wealth of experience in conflict resolution, reconciliatory efforts and sustainable peace, and community mobilisation working with displaced and disenfranchised communities.

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### B.S.A. Mohammed, Research and Technical Development Center, Sudan

**Badreldeen Salaheldeen Ahmed Mohammed** BSc in Agricultural Sciences, University of Khartoum, Faculty of Agriculture, Department of Soil and Environment Sciences. Agricultural Engineer at Research and Technical Development Center.

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### S.H. Ibrahim, Paddington Development Trust, UK

**Somia Hamid Ibrahim** My family and I have lived in London since 1995. I have three children. I worked in Sudan as a social worker. When I came to the UK, I decided to put my skills to good use. I worked as a volunteer at the Sudanese Community Information Centre in North London. While I was there, I initiated the Sudanese Youth Project. My work background has given the opportunity to work with a wide range of organisations in different capacity. I have worked with a number of different minority ethnic groups, mainly with the Migrant Refugee and Community Forum. I was in the steering group that was created by the NHS called the Women Health Project, in which the MRCF created a film sharing the awareness of FGM throughout the community, which included Uganda, Congo, Eritrea and Sudan. We also helped women from different ethnic backgrounds to support them in accessing health services, raising their awareness about their health, health rights and organising health sessions. From 2000, I started off with Sure Star by attending a parent's involvement group meeting, where I met other local parents and I was a member of the Sure Star management board. In 2001, I was working as an advisor and interpreter for Arabic speakers in the British Refugee Council, assessing clients with language difficulties. At the end of the year, I was working at the Bayswater Families centre in Westminster as an advisor (support and general advice to clients). From 2001–2006, I worked as an IAG for the Notting Dale Technology Centre in North London, to raise the profile of NDT amongst users and providing infor-

mation to ethnic and domestic back ground residents across Kensington and Chelsea, Hammersmith and Fulham and Westminster borough, especially unemployed women and young people supporting them to access the service available in the area, creating links with different agencies according to their needs and support the students to participate in training and assess their needs. Also, identifying their barriers and to break the social exclusion by integrating into society. We then moved to Bahrain, where I worked at Dilmon International School (2006–2008) as an ICT Teacher. From 2008–2010 I worked as a deputy head teacher in al Wisam International School. From 2010–present I have been working as a head of student service at Paddington Development Trust. My role in PDT is to Provide advice and guidance to students about different courses our organisations offers, Recruiting students through different marketing approach as well as building partnership with external organisations, Building relationships with internal and external staff members and Managing and maintaining the company database and ensuring the data is accurate, Handling students' issues with regards to their course or financial payments and Supporting students within their course whether they would like to progress into further education or getting into employment. MSc in Refugee Studies, South Bank University

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### M.J.S. Idris, Tawasol Almogtaribat, KSA

**Manal Jaafar Sheikh Idris** is a Non-profit Organisation Consultant. Founders of Sudanese voluntary work in Saudi Arabia. She participated in the establishment of many organisations in Sudan and member of the Supreme Council of Sudanese Communities Abroad. She has participated in many conferences on expatriates and immigrants. Her interests include affairs of the Sudanese families abroad and currently the President of Tawasol Almogtaribat, Saudi Arabia.

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### S.A. Osman, Khartoum Refinery Company, Sudan

**Sufayan Elhajahmed Osman** Sufyan Abd Elrzig Mohmmmed Osman is Sudanese and works as the Head of the Agricultural Unit in the Khartoum Refinery Company in Khartoum-Sudan. He was awarded the Bachelor of Science in Forestry and Ranger Sciences, and Master of Science in Environment and Forestry from Sudan University of Science and Technology in 2002 and 2013 respectively. He has participated in many workshops inside and outside Sudan related to disaster management, quality control of water and wastewater, management of Petroleum installation, compost production and uses, proliferation of orchards, production of medicinal and aromatic plants, Cop 21 in France 2015.

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### Dr. N.I. Ahmed, National Center for Research, Sudan

**Dr. Nawal Ibrahim Ahmed** has a BSc and MSc in Architectural Engineer, the Odessa Civil Engineering Institute, and a PhD in Architectural Engineering, Moscow University for Building. She is currently an Assistant Professor of Research Science at the Institute for Research and Technology, National Centre for Research, and Executive Director of the National Project of Shelter and Human Settlements, Institute for Research and Technology, the Second Project Promotion of Residential Neighbourhood. Dr. Ahmed has supervised more than 20 final year student projects at Sudan University for Science and Technology, is a part-time lecturer at several institutions, and has been a participant in several seminars and workshops for housing planning programmers.

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### R.M. Abdelrahman, Researcher in Sudanese Heritage, Sudan

**Rehab Mohamed Abdelrahman** holds a Master degree in the folklore studies; member of Sudanese writers Union; and author of Sudanese heritage museums book. She is a writer of many articles on Sudanese heritage, published by Sudanese online and daily papers. She is a member of many international organisations. She is a member of international Nubian studies association, France, as Sudanese heritage researcher. She is also the Chairperson of albrakel mountain heritage association. Rehab participated in Oman Sultanate festival.

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### A.A. Hussein, Omdurman Islamic University, Sudan

**Amna Abdulhady Hussein** got his Bachelor Degree from Al Zaiem Al Azhari University College of Education and Science – Biology and chemistry. She completed Master degree from Omdurman Islamic University (Chemistry) and her practical experiences are as a teacher in ministry of Education for six years. She had presented paper in remediation of chromium contamination soil.

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### Dr. S.A.M. Saad, National Center for Research, Sudan

**Dr. Sarra Ahmed Mohamed Saad** was born in Sudan and awarded the PhD degree in Soil Science in 2002 from University of Goettingen, Germany. She was graduated from Faculty of Agriculture, University of Khartoum majoring in Soil Science. She was appointed in the National Center for Research, Department of Environment in 1992 and currently working as senior researcher of Soil Science. She



is leading many research projects dealing with the problem of food security, soil productivity and climate change. Besides organic farming and its applications in Sudan, She is a member of many scientific societies inside and outside Sudan, and awarded prizes for scientific achievements in Sudan and also some patents for producing compost from organic wastes. She supervised many postgraduate students for MSc and PhD levels and offered consultancy to governmental and private sectors about organic food production and fertilisation strategies specially in poor fertile soils. She speaks besides Arabic language, German, English, French and Spanish.

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### **Dr. M. ElNair, Sudan University of Science & Technology and Almughtaribeen University, Sudan**

**Dr. Mohamed ElNair** has Academic Experience: from April 2016 till now and Associated Professor in Almughtaribeen University; from November 2016 till now. He was an Associated Professor in Sudan University of Science and Technology; Lecturer in Juba University and Kordofan University; from 2004 to 2013 and Lecturer of Accounting and costs, International University of Africa; (2012-2013) Lecturer of Management accounting (Master of Business Administration (MBA) in Alzaiem Alazhari University; Lecturer of accounting and professional costs, (Mini MBA), Institute of Development Studies and Research, University of Khartoum; Supervisor of many post graduate students and many BSc graduate students and senior executive fellow students; (2013) Principal (part-time), Sudan Academy of Sciences (Governmental university for post-graduate studies). He has earned Bsc Accounting (1990) in Cairo University, Khartoum Branch; Msc Accounting System Courses (2004) and a PhD Accounting (2009) in Elneleen University.

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### **Dr. B.A.H. Hussein, National Center for Research, Sudan**

**Dr. Badreldin A.H. Hussein** has a BSc in Hydrogeology from Faculty of Science and Technology, School of Applied Earth Sciences, El-Neelain University, an MSc in Geology (geophysics), Sudan Academy of Sciences, and a PhD in Geology (Structure geology), Sudan Academy of Sciences. He is currently a researcher in the National Center for Research, conducting scientific research in geological sciences. He is also head of the Geophysical and Geotectonic Department – Remote Sensing and Seismology Authority. Dr. Hassan is a Member of a working group dealing with disasters and rapid intervention, and a member of many scientific projects.

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## S.B.A. Babikir, Rumi's Cave, UK

**Sheikh Babikir Ahmed Babikir** Originally from the Sudan, Sheikh Babikir arrived in Britain in September 1977. The Sheikh studied Mathematics, administrative management, personnel management and education. He worked in education from 1988 to 2013 as a teacher, head teacher and spiritual director. The Sheikh worked at Islamia Schools Centre which was founded by Yusuf Islam in 1983 as the first British Muslim School and helped in developing the school Islamic ethos. Since his arrival he has been working hard to promote Islam spiritual message amongst the native British. He started his first programme at London Central Mosque at Regents Park, which is currently known as Saturday Circle. He participated in founding AMS Association of Muslim Schools and IBERR International Board for Education Research and Resources. He promoted Muslim Schools at home and abroad through workshops and conferences. He participated in the development of the North London Community Centre where he met His Royal Highness The Prince of Wales for the first time as he had helped in raising the fund from his late Royal Highness King Fahd Bin Abdul Aziz. Since then Sheikh Babikir has been involved in promoting the true message of Islam all around the world. In countries such as South Africa, USA, Nigeria, Indonesia, Qatar, Dubai, Morocco, Holland, Denmark, Pakistan, Bangladesh and many others. He has also worked at spreading this message within the British Isles in schools, colleges, universities, banks, religious institutions and many other organisations. Sheikh Babikir participates in promoting Britain and British Islam through the Commonwealth and Foreign Office. He also joined the Board of Mosaic, a charity founded by the Prince of Wales. The Sheikh also delivers courses in different Islamic subjects in universities and Islamic Centres. One of the areas that the Sheikh is passionate about and has been working hard to promote is interfaith dialogues which he believes are essential in a multi faith Britain. Sheikh Babikir Ahmed Babikir (sometimes known as Sheikh Ahmed Abu-Bakr Al Sudani) studied the Islamic Sciences in Sudan under Sheikh AL Fatih Qaribullah. Sheikh Babikir continues his Dawah circle every Saturday night in London, which began at Regents Street Mosque and now takes place at The Islamic Centre of Brent. For many years the Sheikh has been actively helping the poor and needy in his native Sudan. In 2004, the Sheikh decided to start the work in an official capacity hence Ulfa Aid was founded. Ulfa Aid is an international Relief Agency helping the poor and needy around the world providing homes for homeless people. The Charity worked in Indonesia, Pakistan, Bangladesh and Sudan. In 2011, the Sheikh concentrated his work in London by founding Rumi's Cave Project which provides an alternative space for all people. Currently the Sheikh leads Ulfa Aid with Rumi's Cave Project as Chairman and continues his education and Dawa work as an educational consultant.

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## Dr. A.M.A. Ahmed, University of Gezira, Sudan

**Dr. Ali Muddathir Ahmed** Assistant Professor Faculty of Engineering and Technology, Dept. Of Applied Chemistry and Chemical Technology, University of Gezira, Sudan. expert in Quality, Safety and Environment, Lead Auditor for OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEMS OHSAS 18001:2007 and ENVIRONMENTAL MANAGEMENT SYSTEMS EMS ISO 14001:2004.

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## M.S.A. Saeed, Sudan Meteorological Authority, Sudan

**Mohammed Seifaldeen Saeed** awarded BSc degree in Meteorology in 2011 from Juba University, college of applied and industrial sciences. He was appointed in the Sudan Meteorological Authority, Early warning Unit in 2013, currently working as weather models operator and forecaster. He is responsible for preparing the daily, seasonally weather forecasts and weather warnings reports, also disseminating the weather and climate information to the end users (communities, institutions, organisations, governmental and private sectors....etc.) through media. Mohammed is interesting on climate change issues, climate modelling and disasters management.

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## M.M.J. Rafay, Ministry of Agriculture Blue Nile State, Karmak, MC Scotland Organisation, Sudan

**Manal Mahmoud Juma Rafay** Graduated from the University of Gezira, Agricultural Sciences and Al-Ahfad University for Girls MA, Gender Peace and Development. She works at the Ministry of Agriculture, the Blue Nile locality of Karmak Mc Scotland African Union Capacity Building Program, Rural Women Development Projects. She also member of the Sudanese Society for Environmental Protection. Manal interests include human rights is the result of her work in the Blue Nile, which is an area of armed conflict other than the way she think and see issues. In her work in Blue Nile, Manal benefited from her gender and peace and development studies to understand the nature of the conflict. Manal takes care of young men and women as victims of conflicts in terms of rights and development. She ensured that international agreements, treaties, and international resolutions are dealt with rights in all their articles, but in Sudan, signing, ratification, and agreement with local legislations are non-existent, leaving the youth absent from many participations and rights.

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## W. Albasheer, INBOUND LLC - Dubai, UAE & Intuitio OU Tallinn, Estonia

**Walied Albasheer** is a Visionary Entrepreneur, Futurist, Global 50 most Impactful Social Innovators, TOP 100 Sustainable CEO's, Young Arab Leaders Member, Young Africa Leaders Initiative Curator, Artificial Intelligent Researcher and Re-Engineering People Life through sustainable technology adoption. Results-driven strategist, recognized for taking on major initiatives, adapting to rapidly changing environments and resolving mission-critical issues to ensure bottom-line success. Technically sophisticated and business-savvy professional with a pioneering career reflecting strong leadership qualities coupled with enormous experience. Walied have worked in UAE, GCC, Middle East, Europe, with industries such as government, tourism, transport, real estate, sports events, finance, aviation. In 2011



he founded Inbound LLC in Dubai to bring latest innovation in digital sphere to the region providing technology to airports, trains, metro, couriers services, ecommerce & transportation companies in GCC & the region In 2016 he co-founder Global EVRT a suitability initiative to promote smart mobility and accelerating the adoption of electric vehicles, conducted the program in UK, France, Spain, Italy, Slovenia, Croatia, Austria, Germany, Netherlands, Belgium, UAE, Oman & South Africa. In 2018 he founded INTUITIO OU in Estonia as smart mobility & autonomous driving start up aiming to solve road rages and reckless driving behavior which impacts billions on people daily especially in big cities around the world.

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