

# DevRes 2021 - Advancing Sustainable Transformation

JUNE 14-16, 2021

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**Participatory sessions // Panel presentations // Oral**

**Session 1. Sustainability system and policy concepts on global and regional level  
(SDG 7, 14)**

2021-06-14

10:45 - 12:15

Session 1. Sustainability system and policy concepts on global and regional level (SDG 7, 14)

## **S1.1 - Scientific seminar on design of sustainable mobility system**

### 1. Sessions

**Hari Kumar Suberi**<sup>1</sup>

<sup>1</sup> Prof. Dr. Wolfgang Jonas, system design expert

### **Proposal for session hosting for the design of sustainable mobility system model**

#### **Session description**

In this session participants explore the mobility system through complex system analysis defined by its actuating global variable list. Design of mobility system will adopt research through design approach by involving actors of mobility system. The actors are system planner, policy maker and user. The active dialogue is guided methodologically. A mobility system that is pre-defined will be tested through participatory format to explore alternative future mobility scenario for policy and planning decision support. The system designer especially the organizer facilitates the session by engaging the participant to take part in exploring three possible future scenario of the mobility system. The participants work extensively on the cross-impact assessment of 22 global variable lists that define mobility system in a group of 3 to 4 to give a rough system image. The predefined system model with the system vision of enhancing better human wellbeing is required to be visualized in 90 minutes for further dialogue and system innovation.

#### **Rational**

Session contributor: Hari Kumar Suberi

Country: Bhutan

Topic: Sustainable Mobility System design for future

Addressing sustainable development is inevitably linked to gross system transformation rather than that of transforming part of the system in isolation, which is complex because of interdependency of global variable. Transport and logistics system sometimes called as sustainable mobility is one of the complex system that is interdependent to many other subsystems for it to be sustainable. Although lot of research and new ideas for mobility system challenges are addressed, they lack the complete picture of the mobility as a system. For defining mobility as a system, it is also important to engage various levels of stakeholders. This opens a global question of should technology development solve the mobility system sustainability or should there be systemic transformation. Therefore this global vision for the mobility system to be sustainable depends on the dreams and wishes of the system actors, which can only be recognized in a participatory format. There are three main reasons why this topic is very important for open discussion.

1. Although climate debate on transport related emissions are defined, there is no clear regulatory measure if the mobility system needs transformation. If it has to be transformed,

who is responsible for their sustainability? So it is important to optimize both demand side management and supply side management addressed through robust policy.

2. Mobility system that facilitates the daily movement function has become a status symbol, which is behavioral problem created by industrial product development. Therefore it is important to know if business model change for mobility industry is necessary for changing the prevalent status symbol of car ownership, which needs participatory dialogue.
3. The growth model of economic development has strong influence on the mobility system development. Therefore it is important to discuss and know if the future trend and the duality of rural and urban development are correctly placed in the research findings, which also need further investigation in a participatory format.

Thus the above mentioned reasons are global and are seen to behave as if like "tragedy of common", which need more debate and social dialogue at various levels. Therefore mobility as system design finds significant role for global debate and agenda that can be part of political and economical dialogue.

### **Session format**

By adopting the Vester's Sensitivity analysis methodically the design of the system will analysed by listing global set of variable defining mobility system. There are 22 different actuating global variable lists that will be extensively discussed with the participants. The variables are infrastructure development, technology development, fuel energy security, institutional capacity, spatial dynamics, accessibility, mobility service, resilience to accidents, capital investment, operational capital, economic development, environment pollution, safety and security, enabling conditions, cultural values, attractiveness and aesthetics, awareness on new mobility, participatory planning culture, justice and fairness, rural urban dynamics and human well being. The list of these global variables will be validated together in the first phase and in the second phase their cross impact assessment is worked out in a group of 3 to 4 person. The possible future scenario that is defined from the variable list will be used to develop the mobility system model for future use.



## S1.2 - Looking back to inform future sustainability concepts

### 2. Individual abstracts

#### **Andrea Downing**

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**Introduction:** For decades, scientists have attempted to provide a sustainable development framework that integrates goals of environmental protection and human development. The Planetary Boundaries concept (PBC) – a framework to guide sustainable development – juxtaposes a ‘safe operating space for humanity’ and ‘planetary boundaries’, to achieve a goal that decades of research have yet to meet. We here investigate if PBC is sufficiently different to previous sustainability concepts to have the intended impact, and map how future sustainability concept developments might make a difference. **Methods:** We build a genealogy of the research that is cited in and informs PBC. We analyse this genealogy with the support of two seminal and a new consumer-resource models, that provide simple and analytically tractable analogies to human-environment relationships. Furthermore, the models highlight interdependencies between the dual aims of ‘conservation’ and ‘poverty alleviation’, bringing together environmental limits, minimum requirements for populations and relationships between resource-limited and waste-limited environments.

**Results:** PBC is based on coherent knowledge about sustainability that has been in place in scientific and policy contexts since the 1980s. PBC represents the ultimate framing of limits to the use of the environment, as limits not to single resources, but to Holocene-like Earth system dynamics. Though seldom emphasized, the crux of the limits to sustainable environmental dynamics lies in waste (mis-)management, which sets where boundary values might be. Minimum requirements for populations are under-defined: it is the *distribution* of resources, opportunities and waste that shape what is a safe space and for whom.

**Conclusion:** We suggest that PBC is not different or innovative enough to break ‘Cassandra’s dilemma’ and ensure scientific research effectively guides humanity towards sustainable development. We illustrate how the framing sustainability as boundaries has led to repeated relativisations of limits and shifts in baselines that have allowed to maintain ‘business as usual’ un-sustainable development. To effectively guide humanity towards sustainable development, we suggest that key issues of equality must be addressed, un-sustainability must be framed as a problem of today, rather than projected into the future, and scientific foundations of frameworks such as PBC must be broadened and diversified.

### **S1.3 - Development finance effectiveness and sustainable development in developing countries: A case of Mongolian energy sector**

#### 2. Individual abstracts

**Delgermaa Begz<sup>1</sup>**

<sup>1</sup> Msc in Environmental Science, Policy and Management European between Lund University (Sweden), Central European University (Hungary) and University of the Aegean (Greece), Research intern at Stockholm Environment Institute (SEI)

#### **\*Abstract**

The billions of dollars have been transferred globally to tackle climate change and promote sustainable development in developing countries, through the OECD's Official development assistance (ODA) so-called "development finance" as well as through "climate finance" which has been growing since international commitments to limit global warming. The problem is that having tradeoff between mitigating climate change and eradicating poverty in developing countries led to opt for financing either environment or economic development. To sustain all, universal agreements such as 2030 Agenda for Sustainable Development is crucial. This collective ambitions goal not only requires climate and sustainability actions across the world but also highlights mobilizing finance flows. Furthermore, increasing development and climate finance mobilized to developing countries calls the importance of effectiveness that recipient countries should spend that finance effectively in order to reach both climate and SDGs without hindering one to another.

Therefore, the purpose of the research is to analyze development finance effectiveness incorporating SDG indicators and policy documents for the case of the Mongolian energy sector. Mongolia is a compelling case because fossil fuel based, mineral resource-driven country ranks the second-largest recipient in East Asia after China. The methodology of the research includes *systematic mapping* and *synthesis analysis* of development finance, SDGs and energy sector through the mixed - quantitative and qualitative analysis. Research materials contain ODA database from 2002 and 2017, SDGs indicators and related policy documents.

The preliminary result shows several contradictions and nonalignment. First, Mongolian "Industry, Mining and Construction" sector received the highest portion of development finance from donors such as Japan, EBRD and ADB over the 15 years. However, targeted global objectives were Environment, climate mitigation and good Governance. In the energy sector, renewable energy (Solar, Wind and RE technology) received the vast majority of financial support, yet there was still some finance promoted coal-fired electric power plants. Although SDG7 also indicates that electricity access is significantly high, air pollution caused by burning coal and cars leading an unprecedented crisis for half the population in Ulaanbaatar city. Furthermore, the share of renewables in total energy consumption is negligible, which led policymakers to revise the renewable energy target of 20% from 2020 to 2023. There is still some hope for sustainability transition given that the country has vast potential to scale up renewables and enormous financial flows however this requires sectoral change, energy efficiency assessment as well as collective support and dialogue to promote SDGs and clean energy.

\*This is the MSc thesis research. It has been supervised by the SEI (Georgia Savvidou) and Lund University advisors.



## **S1.4 - Restoration and sustainable management of degraded reef communities through adoption of biological and ecological strategies on reef organisms**

3. Multimedia presentation

**Ruchira Cumaranatunga**<sup>1</sup>

Terney Pradeep Kumara<sup>2</sup>, Ashoka Deepananda<sup>1</sup>, Sacithra Amrin Hettiarachchi<sup>1</sup>

<sup>1</sup> Dept. of Fisheries and Aquaculture, Faculty of Fisheries and Marine Sciences & Technology, University of Ruhuna, Matara, Sri Lanka

<sup>2</sup> Dept. of Oceanography and Marine Geology, Faculty of Fisheries and Marine Sciences & Technology, University of Ruhuna, Matara, Sri Lanka

### **Introduction**

Sri Lanka is an island in the Indian Ocean, blessed with very important sensitive coastal ecosystems, viz. coral reefs, seagrass beds, mangroves, etc. Due to natural phenomena and anthropogenic activities such as tsunami, thermal anomalies, sedimentation, pollution, over-fishing, unplanned coastal development, etc., sensitive ecosystems have suffered degradation. Coral reefs are considered the most important due to its ecological functions and services ensuring healthy marine bio diversity, food security and sound socioeconomic status of coastal dwellers. Therefore, it is imperative to propose suitable strategies for their sustainable management, considering also the possible impacts of climate change.

### **Justification**

The Faculty of Fisheries and Marine Sciences & Technology (FMST), University of Ruhuna (UoR) has been fortunate to receive grants from Sida/SAREC (Sweden), under the coastal and marine science research programmes, which enabled human and infrastructure capacity building at the UoR to carry out basic research on coral reefs of Southern Sri Lanka. Above programmes which included basic ecological surveys, identified the needs for restoration and management of these reef ecosystems, ensuring sustainable socioeconomic development in the coastal districts. The most important of them are restoration of reefs by transplanting corals, management of reef fisheries by adopting strict fishing regulations and identifying feeding and spawning sites, stock assessments and the usage of other tools such as closed seasons, catch quotas and protection of threatened and endangered organisms of ecological/economic importance. In order to reduce the fishing pressure on reef organisms of ornamental and food value, development of captive breeding techniques was also identified as an essential strategy. In Sri Lanka in depth information on reef communities are sparse due to limitations of infrastructure, human capacity and funding for coastal and marine research. FMST has the best opportunity to be developed as a marine higher educational and research entity, being a coastal university already established with basic facilities for coastal and marine research.

### **Conclusions**

It is important to understand the biology, ecology and population dynamics including migratory circuits of reef organisms; essential strategies required for their restoration and conservation; impacts of climate change, pollution and fishing on them ; and needs for captive breeding of species with ecological/economic significance and endangered. To achieve the above, a fully fledged advanced marine research setup with well-equipped mariculture facilities and advanced laboratories required

for molecular biological and other essential analytical work for marine research should be established at FMST, for which funding from donor agencies is imperative.

**Session 2. Infrastructure, industry, land: conflicts and community resistance  
(SDG 9, 12)**

2021-06-14

10:45 - 12:15

Session 2. Infrastructure, industry, land: conflicts and community resistance (SDG 9, 12)

## **S2.1 - Our forefathers' land has been grabbed by the mining companies: community perspectives on diamond mining in Tanzania**

2. Individual abstracts

**Dr. Rasel Madaha<sup>1</sup>**

<sup>1</sup> Sokoine University of Agriculture

Tanzania remains one of the richest countries in the world in terms of the natural resources. The country has large reserves of Tanzanite, Gold, natural gas, and Diamond. In mid-1980s, the Tanzanian government made market reforms which shifted its role from the owner of mining companies to that of the regular and the facilitator in the sector. Despite the reforms Tanzanians remain one of the poorest people in the world. Of particular importance is on-going unrest between privately owned mining companies and impoverished surrounding communities. Using a PAR methodology, this article presents on-going conflicts between diamond mining companies and the surrounding communities. The article also presents possible solutions to the on-going challenges. Overall, the findings highlight presence of social calamities including physical torture, murder, corruption, and Gender Based Violence that are committed to the communities. Nonetheless, there are some attempts by the local communities to resist the oppression. The on-going social calamities and associated coping strategies, at least from the local communities' perspective, are hardly known. In an attempt to contribute to the literature on extractive industries and society, the article has documented such experiences from a local community perspective. The article also adds to the literature on methodologies for studying interactions between the mining sector and surrounding communities. The article responds to Sustainable Development Goals 1 (No Poverty), 2 (Zero Hunger), 5 (Gender Equality), 10 (Reduce Inequality) and 11 (sustainable cities and communities).

## **S2.2 - Rights-based claims and extractive industries in Asia: an assessment and ways forward**

### 2. Individual abstracts

**Sara K. Phillips**<sup>1</sup>

Claudia Strambo<sup>2</sup>, Albert Salamanca<sup>3</sup>

<sup>1</sup> Stockholm Environment Institute and Chulalongkorn University, Bangkok, Thailand

<sup>2</sup> Stockholm Environment Institute, Stockholm, Sweden

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### **Introduction**

A growing body of international law addresses the rights of people in natural resources, and the purview of these rights continues to expand. In the context of mineral resource extraction, rights in natural resources are frequently a source of contention, with rights-based claims representing an expression of the various conflicts that may arise in the course of development activities. In South and Southeast Asia as compared to other parts of the world, far less research has been undertaken to understand how rights-based claims are made in the extractive sector, the circumstances that underlie these claims, and the resultant effects of these efforts. This working paper addresses some of these existing knowledge gaps through an assessment of regional case studies on rights-based claims made by local actors.

### **Methods**

To undertake this research, we employed principles from a systematic review and mapping approach to published academic literature on explicit rights-based claims by local actors in the context of conflict over extractive industry activities. We generated a coding framework and then catalogued the available evidence, applying a narrative synthesis to our findings. Our analysis is presented within a social constructionist framework that situates rights in natural resources as socially constructed, mental, and discursive devices that reflect the way people make sense of their struggle over material resources and entitlements.

### **Results**

The literature screening yielded 20 journal articles that specifically addressed local actors' rights-based claims in the context of extractive sector development in South and Southeast Asia. Within these case studies, we found a set of common approaches to rights-based claims, as well as several shared characteristics of rights claimants in the region. These approaches were separated into three broad categories: (a) pursuing environmental justice claims; (b) making Indigenous rights and land claims; and (c) claiming the right to engage in artisanal and small-scale mining.

### **Conclusions**

The case studies illustrated the unique and creative ways that local actors utilize available resources to pursue rights-based claims. Nonetheless, the results also revealed that, despite new developments in, and spaces for, rights-based claims in the context of extractive industry development, recourse measures are still hard-fought, resource-intense efforts that are difficult to sustain for many rights



holders. This working paper thus contributes to two important areas: how to provide more effective support to rights claimants; and the need for additional research on rights-based claims.

### **S2.3 - Community collective action – Wartime Resistance to Dams in Myanmar**

#### 2. Individual abstracts

**Kyungmee Kim<sup>1</sup>**

<sup>1</sup> Department of Peace and Conflict Research, Uppsala University

The paper examines the viability of local-level resistance in violent contexts and seeks to answer the following question: “*Why do some conflict-affected communities resist a state policy on dam building, while others do not?*” The paper focuses on community resistance defined as the degree of participation in “wartime social movements” in the face of dam building. Unpacking the process of mobilization, the findings explain the conditions behind the variation in local-level resistance within and cross movements. Focusing on the socio-psychological dimensions, I highlight the effect of “shared victimhood” on constructing a shared threat and spread of the resistance narrative. A sense of collective victimization and unity around victimhood constitute shared victimhood. In order to empirically illustrate the theoretical argument, paper compares three case studies of conflict-affected communities opposed dams in Myanmar and draws from original, qualitative evidence obtained from fieldwork. The paper contributes to the knowledge of nonviolent social movements in violent contexts, which expands the scope of civilian behaviors and agency by including resistance nested in social movements. By looking at social conflict around dam building, the inquiry also contributes to the discussions on the role of water in subnational conflict and policy debates on large dams, which is important in relation to social and economic sustainability and peace.

## **S2.4 - Using digital media to bring Indigenous perspectives into discussions about sustainable development and transformation**

### 2. Individual abstracts

**Camila Emboava Lopes<sup>1</sup>**

<sup>1</sup> Umeå University

#### Introduction

This presentation discusses how Indigenous peoples' collectives use digital media as a strategy for resistance and struggle for rights in contemporary Brazil. Earlier studies reveal a routine of denigration of Indigenous peoples in dominant media and the use of stereotypes rooted in coloniality. Indigenous movements and collectives have been appropriating social media to challenge colonial stereotypes and hegemonic views about them. In this presentation, two Indigenous collective media initiatives from Brazil will be discussed to analyse how they construct their presence in digital spaces and to reflect about to which extent their own constructions of indigeneity intersect with ideas about land-use and environmental protection: web radio *Rádio Yandê* and *Ascuri*, an association of cultural producers.

#### Methods

The study is informed by earlier research about Indigenous owned media initiatives in different parts of the world and literature on digital media and social media. The used methods are content analysis, online observations and qualitative interviews with Indigenous media producers in Brazil.

#### Results

The research findings emphasize that the concepts of land and nature play a central role in the construction of indigeneity by Indigenous media collectives. Moreover, the collectives call for the inclusion of Indigenous perspectives in the global discussions about sustainable development and transformation.

#### Conclusions

This research highlights the importance of Indigenous voices, which play a crucial role in a moment of political and environmental crisis in Brazil and in the world. The study also calls for increasing dialogues between the fields of sustainable development, environmental communication and Indigenous studies.

## **S2.5 - Resilient Infrastructure and Sustainable Industrialisation in Ethiopia? – an analysis of Addis Ababa’s light railway transport system**

2. Individual abstracts

**Lydia-Gennet Watchefo**<sup>1</sup>

Camille Pellerin<sup>1</sup>

<sup>1</sup> Department of Government, Uppsala University

After two decades of relative silence on industrial policy in international development cooperation, the SDGs have put renewed focus on the importance of industrialisation and creation of infrastructure for development (Goal 9). Both sustainable industrialisation and infrastructure are also key for the achievement of other SDGs, such as economic growth (Goal 8), good health (Goal 3), education (Goal 4), clean water (Goal 6) and clean energy (Goal 7), hence constituting cross cutting issues.

Several countries on the African continent have recently tried to emulate policies used by the Asian Tiger economies, to industrialise. Some of them like Rwanda and Ethiopia have been marvelled at by development practitioners and academics alike and nick-named the “African Lions” because of their accelerated and sustained growth rate. However, and much like their Asian role models, the so called African developmental states have mostly been characterised by authoritarian rule. Similar to the Asian Tigers, instead of procedural legitimacy through representation and democratic governance, the African Lions have tried to build political legitimacy on the delivery of developmental outputs.

In the case of Ethiopia, the outbreak of countrywide anti-regime protests in 2015 revealed that the ruling coalition had failed to build legitimacy on developmental outputs and to overcome the image of an ethnic minority government. Moreover, the protesters questioned the coalition’s claim that it delivered inclusive growth and challenged its model of revolutionary democracy, demanding civic and political rights.

The Ethiopian experience raises important questions such as (1) Can the developmental state model be applied outside of East Asia? And Can and should authoritarian developmentalism really be promoted given its neglect of civil and political rights? This paper aims to fulfil this gap by providing an in-depth analysis of the operations of the developmental state around the light railway transport project in Addis Ababa and shedding light onto the politics of the developmental state in Ethiopia.

The Ethio-China collaborated Light Railway Transit (LRT) was finalized in 2015, thanks to 85% funds from the Export-Import Bank of China. By studying the LRT, the main observable found is that it contributed to developmental image-building and failed to meet some of the other objectives pursued by it, such as providing reliable transportation service to citizens.

The paper is based on semi-structured interviews with 29 informants. All interviews were between 30-180 minutes long and were conducted in Addis Ababa between October 2015 and December 2019. To capture the politics around the construction and use of the light railway transport system, we interviewed different stakeholder groups. Informants included employees at the Ethiopian state,

the Chinese embassy, Addis Ababa University, international organizations, construction companies in the Ethiopian private sector, and citizens.

**Session 3. Sustainable dryland development for livestock keepers in sub-Saharan Africa (SDG 8, 16)**

2021-06-14

10:45 - 12:15

Session 3. Sustainable dryland development for livestock keepers in sub-Saharan Africa (SDG 8, 16)

### **S3.1 - Sustainable dryland development for livestock keepers in sub-Saharan Africa**

1. Sessions

**Göran Bostedt**<sup>1</sup>

<sup>1</sup> Umeå School of Business and Economics, Umeå University

#### **Session description**

A substantive body of literature shows that pastoralist systems in sub-Saharan Africa is being increasingly exposed to international, regional and national market forces with transformative impacts on pastoralist land, livestock and livelihoods. Pastoralist rangelands are subject to privatization and commodification through a combination of land tenure- and land use change, including exploitation of energy- and mineral resources, expansion of irrigation agriculture, large-scale infrastructure investments, as well as land- and administrative reforms. Pastoralist livestock production and trade is at the same time being increasingly integrated into expanding national and regional food markets. As pastoralist production systems are undergoing rapid change, so is pastoralist livelihood strategies, which are undergoing a simultaneous process of intensification (through more commercialized livestock production) and diversification (more and more pastoralists are fully or partly leaving the livestock sector in search for alternative rural as well as urban livelihoods). The integration of previously marginalized pastoralist areas into expanding land- and livestock markets is not solely an economic transformation, but is intimately coupled to processes of state expansion and consolidation. It is an ongoing, rapid and regional transformation of the political economy of pastoralism.

The panel session will consist of contributions from all fields of social science, as well as natural science oriented fields such as rangeland management, animal husbandry and soil science. It will contribute to an increased understanding of pastoralist livelihood in the region.

#### **Session presentations and contributors**

##### **Escaping the pastoralist paradox in the face of climate change**

An interdisciplinary project funded by the Swedish Research Council. The hypothesis for this project is that the resilience of the transition from pastoralism to agro-pastoralism rests on the capacity to provide secure but still flexible access to land, the so-called paradox of pastoralist land tenure. The purpose of this project is to conduct a comparative study of land tenure and capacity for climate adaption in four semi-arid, pastoralist regions in Kenya.

Presenter: Göran Bostedt

Umeå School of Business and Economics, Umeå University

Organizer and moderator of the session. Works on environmental and natural resource economics.

Has worked with issues concerning pastoralist livelihood and economic decision-making.

### **Fighting for natural resource rights through lawfare: pastoralist political mobilization in Turkana, Kenya**

How has state-led exploitation of oil resources and planned infrastructure investments in the drylands of northern Kenya provoked local political contestations across different segments and representatives of the predominantly pastoralist population in the County of Turkana. How have formal institutional mechanisms become a platform for political mobilization and claim making centered around land rights. These processes can be productively understood as acts of 'lawfare', which potentially have important implications for the way drylands are governed in Kenya.

Presenter: Per Knutsson

Department of global studies, University of Gothenburg

Works on Inter- and transdisciplinary research on environment and development. Questions related to the implementation of sustainable development as theory and practice, as well as adaptation to climate change in semi-arid areas.

### **Some (quite many) perspectives on dryland restoration**

Will present the Triple L research network. Will also present the need for experimental research *and* indigenous knowledge systems when it comes to sustainable dryland development, and the need to problematize/contextualize research - both biophysical details and socio-economic effects - *and* to have visions, the need for, and possibilities of combinations and multi/interdisciplinarity.

Presenter: Gert Nyberg

Department of Forest Ecology and Management, Swedish University of Agricultural Sciences, Umeå

Coordinates the multidisciplinary Triple L (Land, Livestock and Livelihood) Research Initiative - a research collaboration between Sweden and Kenya. Works is carbon and nutrient dynamics in agroforestry and dryland systems. Also has wide practical experience from development work in agroforestry and drylands in Africa.

### **Achieving the SDGs in East African drylands: Pathways and challenges towards a social-ecological transformation of landscapes, livestock and livelihoods (Drylands Transform)**



The Drylands Transform project will use innovative approaches in dryland borders of Kenya/Uganda focusing on livelihood improvement through rangeland restoration and governance interventions. The project will use mixed methodological approaches for data collection and participatory action research.

Presenter: Stephen Mureithi

Department of Land Resource Management and Agricultural Technology, University of Nairobi, Kenya

Focuses on the direct effects of disturbance on dryland ecosystems. Main interests are: i) land, soil and water management, and restoration of degraded arid environments ii) desertification linked to global environmental change through climate, biodiversity loss, pastoral livelihoods, and land use change.

### **Excessive livestock grazing overrides the positive effects of trees on infiltration capacity and modifies preferential flow in dry Miombo woodlands**

Explains how uncontrolled livestock grazing has the capacity to override a well-known positive influence of trees on soil hydrological properties and impede underground water recharge processes in dryland forest ecosystems. Although different land management practices and uses are known to have different effects on soil water movement, overgrazing has the ability to influence them all the same.

Presenter: Lufunyo Lulandala

Department of Forest Ecology and Management; Tropical Forestry and Land Use Management Unit, Swedish University of Agricultural Sciences, Umeå

Working on the effects of land use changes/ practices on soil hydrological properties in tropical dryland forests. Focusing on livestock grazing, agricultural practices and forest management effect.

### **Improving rangelands productivity through bush control in Samburu County**

The global sustainability of wood supply is immensely affected and constantly under the threats of deforestation and forest degradation that continues to take place at an alarming rate, yet woodfuel has continued to be a major source of energy. The wood demand is anticipated to triple by 2050. Yet few people in the Samburu County realize net benefits from the widespread presence of invasive woody plant species like *Acacia reficiens* and *Prosopis juliflora*. The AgriFoSe2030 project will build capacity of women and youth in controlling the spread of bush invasion through utilization for fuelwood and livestock feed.

Presenter: Jane Mutune

Wangari Maathai Institute for Peace and Environmental Studies, University of Nairobi, Kenya

Works on inter and transdisciplinary research on Environmental Governance with a keen interest in on-farm trees, forest governance and rural livelihoods.

**Information about how the session will be run**

The session will start with short, 10 min, presentations by all session contributors except the moderator. This will cover the first hour. The moderator will prepare questions relating to the presentations. After the presentations, the panel member will be seated together in front of the audience, and will first discuss the prepared questions by the moderator and then questions from the audience. The chair/moderator will be Göran Bostedt.

**Session 4. Agricultural and technological transformations for sustainable development (SDG 6, 7)**

2021-06-14

10:45 - 12:15

Session 4. Agricultural and technological transformations for sustainable development (SDG 6, 7)

#### **S4.1 - Climate-smart agriculture and social sustainability: constraints of agricultural transformation among farmers of Taita Taveta County, Kenya**

2. Individual abstracts

**Antti Autio**<sup>1</sup>

Tino Johansson<sup>1</sup>, Petri Pellikka<sup>1</sup>

<sup>1</sup> Earth Change Observation Laboratory, Department of Geosciences and Geography, University of Helsinki

Since the emerge of climate-smart agriculture (CSA) a decade ago, it has become a key policy framework in the global discourse for tackling negative impacts of anthropogenic climate change on smallholder farmers of the Global South. This research as a part of the project ‘Environmental Sensing of Ecosystem Services for developing a climate-smart landscape planning framework to improve food security in East Africa’ aims to examine how land use conflicts contribute to climate-smartness in smallholder agriculture dominant Taita Taveta County of South-Kenya. Our hypotheses are that current land use trends are hindering the advancement efforts of local farmers to transform into a more sustainable and climate-resilient agriculture, and this hindrance is not taken into consideration profoundly in the CSA framework.

This study applied the Climate-Smart Agriculture Rapid Appraisal (CSA-RA) -tool, introduced by the International Center for Tropical Agriculture, to gain knowledge on vulnerabilities, constraints and possibilities of farmers in Taita Taveta County to implement CSA approach. During the appraisal, four participatory farmer workshops (102 participants) were organised in different agro-ecological and socio-economic zones of the county. In addition, the tool comprised of key-informant interviews (16 participants), household surveys (65 households), four rapid market assessments and four transect walks. The fieldwork took place in February-March 2019.

The workshop and household survey results indicate that farmers are knowledgeable on different CSA practices. This contradicts with the majority of the key-informant interviews, as ignorance on agricultural practices was considered the main reason for perceived low level of implementation. The differing agro-ecological and social conditions highlighted the incapability for up-scaling climate-smart practices universally. A key finding was that the traditional land tenure system that predates present legislation continues to play a role in agriculture, and affects climate change adaptation efforts. In Taita Taveta County, contradicting traditions and national legislation create a land tenure system that has implications on especially women’s capability to engage into CSA practices.

Climate-smart agriculture can be an efficient framework for enhancing the capacity of smallholder farmers in the Global South to adapt to climate uncertainties, environmental changes and extreme weather events. Nevertheless, as the results alongside recent critique in literature on CSA suggests, the concept needs to be reframed more inclusive to take better into consideration issues of local geographical context such as gender, land ownership, labour advances, market mechanisms, consumption patterns and power relations, instead of focusing on purely technological solutions. This requires further theoretical and methodological development.



## **S4.2 - Assessing the awareness, adoptability and sustainability of improved pellet cook stoves of low-income households in Lusaka, Zambia.**

### 2. Individual abstracts

**Mukuka Mpundu Mulenga<sup>1</sup>**

Anders Roos<sup>2</sup>

<sup>1</sup> Government of the Republic of Zambia, Ministry of Chiefs and Traditional Affairs

<sup>2</sup> Swedish University of Agricultural Sciences

#### Abstract

In order to attain sustainable development, there is need for clean and reliable energy. Woodfuel make up over 70 percent of the national energy consumption in Zambia as only about 25 percent of the population has access to electricity. Availability of sustainable, clean and reliable energy remains a huge challenge as many houses use solid fuels and inefficient cook stoves which have adverse effects for human wellbeing, health and the environment. One initiative for sustainable energy provision in urban Zambia has been the introduction of improved cook stoves (ICS) based on sawdust pellets to replace traditional cooking on charcoal braziers. One of the main motivations for improved cook stove interventions has been to reduce household demand for woodfuel thus to reduce pressures on deforestation. However, adoption of improved cook stoves remains relatively low.

Using a user centred approach, the study investigated the awareness, adoptability and sustainability of improved pellet cook stoves in view of government policies of Matero-George Compound, Lusaka low income households. It sought the factors influencing households' preference of traditional or modern cook stoves, the knowledge of available energy options, the challenges households had relating to their current cooking solutions and the options available them and the appropriateness and effectiveness of government policies promoting the use of improved cooking technologies. The study employed a qualitative approach using semi structured interview questionnaires. The study involved thirty (30) respondents comprising ten (10) key informants from Departments of Energy (3) and Forestry (2) and the Lusaka City Council (5), and 20 households from Matero-George Compound.

The study revealed three main types of energy used by different households namely; woodfuel, electricity, and the pellet cook stoves. The four major determinants of energy choice were; in/convenience, economic, health and risks factors. It also revealed that the expense of the pellet cook stove could be the reason for its slow adoption. Further, the study revealed that adoption was also affected by the awareness levels of the pellet cook stoves and new technologies which was low except for the people involved in the projects. It also showed that the government had no policy instruments with regard to dissemination, sensitisation and communication strategies on the new cook stoves.

Improving adoption of the improved cook stoves requires simultaneously addressing barriers related to the adopting individuals, the innovation (stove) and the Government.

Keywords: Sustainable development, Improved cook stoves, Pellets, Adoption.



### **S4.3 - The multiple meanings of water: wastewater treatment and reuse seen from a communication perspective**

2. Individual abstracts

**Annika Egan Sjölander**<sup>1</sup>

<sup>1</sup> Umeå University

#### *Introduction*

Water-related problems are increasingly recognized as one of the most immediate and serious environmental threats to mankind. Water use has more than tripled globally since 1950, and lack of access to a safe water supply and sanitation, affects the health of 1.2 billion people annually (WHO and UNICEF, 2000). About one third of the world's populations currently live in countries suffering from moderate to high water stress (WHO, 2006) and this has of course made wastewater reuse extremely important. However, different water reuse alternatives and 'solutions' have been met with difficulties and resistance when implemented, even in societies that experience high water stress and even if reuse of wastewater has a long history. This is partly due to the (health) risks associated with wastewater use such as elevated levels of pharmaceuticals and trace metals that can accumulate in crops. Wastewater reuse for agriculture represents the largest volume, and is expected to increase.

Despite water being a vital resource, relatively few communication scholars have studied the meaning-making processes associated with water, also when it comes to reuse of wastewater. Being a scarce resource in many societies implies that having access to water is very much linked to politics and different forms of power. The resistance to technological solutions, and different wastewater treatments, also reveal that water (use) has multiple meanings and that the meaning-making processes of water are indeed rooted in culture. The meaning also varies depending on context. Like Hansen (2010) demonstrates when reviewing decades of environmental communication research, it is key to understand the specific context within which communication about an environmental problem takes place, when trying to understand e.g. communication about water.

#### *Method, preliminary results and conclusions*

In this paper we develop a theoretical perspective focusing on communication, and that manages to identify the multiple meanings of water that are always in flux. How wastewater treatment and reuse can be understood and received within a particular community or culture is of particular interest. Further we aim to reflect on the role of communication in sustainable implementation or reuse of water in communities and countries that experience high water stress. The work is part of a multidisciplinary research project (media and communication, psychology, chemistry) about wastewater reuse in South Africa and Morocco, conducted together with researchers from these countries, and originally built from experiences from earlier science-based (mainly chemical) projects.



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#### **S4.4 - Awareness guide for local elected officials on climate change, environmental protection and renewable energy in the framework of Act III of decentrali**

2. Individual abstracts

**Fadel Kebe**<sup>1</sup>

Ababacar Ndiaye<sup>2</sup>, Capucine Dupont<sup>3</sup>

<sup>1</sup> Cheikh Anta Diop University

<sup>2</sup> Assane Seck University

<sup>3</sup> Delft Institute for Water Education

Abstract:

During the 20th century, the average temperature of the earth rose by 0.6 °C. This phenomenon has accelerated sharply over the past fifty years, with a rate of + 0.13 °C per decade. It is established that human activity is without context in question. In fact, anthropogenic effects through activities (agriculture, industry, transport, housing, waste management, etc.) lead to the combustion of fossil fuels and the release of greenhouse gases (GHGs) into the atmosphere.

In Senegal, in the new organization of territories, the state has implemented Act III of decentralization which transfers to municipalities more powers for the sustainable management of their territories. However, both the elected representatives of these municipalities and the technical services that accompany them are not equipped enough to succeed in these missions. This guide is set up to raise awareness among local elected officials in the southern regions of Senegal on climate change, environmental protection and on renewable energies, particularly rural electrification in this context of energy transition.

The approach used is based on thematic studies carried out as part of the Integrated Climate Plan for the Dakar region, but also on survey work and through feedback sessions with 385 local elected representatives as well as regional development agents from the southern regions of Senegal.

The results obtained show the relevance and the urgency of working at local scale which offers a real opportunity for actions on niche activities for mitigation and adaptation (building, public lighting, production transport, etc.). The Guide made it possible to identify several areas for action on a local scale. We can quote actions on:

- Town planning, development and transport
- Agriculture and consumption
- The energy consumed
- The waste collection, treatment and valorization
- Preservation of biodiversity

The Guide finally shows that these actions are to be structured around the key actors in the territory in the favorable context the Act III of decentralization of Senegal.

Key Word: Climate Change, rural electrification, attenuation, adaptation, act III of decentralization,

## Integrated Climate Plan

**Session 5. (Part one) Agronomy at work (SDG 2, 1)**

2021-06-14

10:45 - 11:45

Session 5. (Part one) Agronomy at work (SDG 2, 1)

## **S5.1 - Combined effect of doses, insecticide and action mode on the control of the funnel Caterpillar, *Spodoptera frugiperda* on corn.**

### 2. Individual abstracts

**Egas Armando**<sup>1</sup>

Laitela Horacio<sup>1</sup>, Balane Simeão<sup>1</sup>

<sup>1</sup> Eduardo Mondlane University - Superior School of Rural Development

The present work aimed to evaluate the combined effect of doses, type of insecticide and mode of action in the control of the funnel caterpillar, *Spodoptera frugiperda* in the corn crop. The trial was conducted in Machengue, Administrative post of Mapinhane, Vilankulo from June 2019 to February 2020, based on a completely randomized block design, on factorial arrangement, consisting of three factors (dose factor - with five levels) , of which: 0% - recommended dose; - 5% below the recommended dose; - 10% - below the recommended dose; + 5% above the recommended dose and + 10% above the recommended dose. Insecticide type factor - with three levels , being: 1- *Ecoterex*; 2- *Eperator*; 3- *Cypermethrin* Factor mode of action - with two levels, being: 1- by contact applied 7 in 7 days until physiological maturation; 2- systemic applied 14 in 14 days until physiological maturation), three repetitions (blocks), making 30 treatment and 90 plots throughout the test. The test occupied a total area of 1012 m<sup>2</sup>, corresponding to 46 m in length and 22 m in width. The insecticides (*Eperator* and *Cypermethrin*) were applied in a liquid form using a manual-dorsal spray, where the spray jet was directed into the funnel, while for the application of the granulated insecticide (*Ecoterex*), graduated cups were used, directly applying the product in the funnel within 7 and 14 days. For the trial evaluation, the number of plants with eggs, number of larvae, pupae and adults were counted in 10 plants per plot. The results obtained were subjected to the homogeneity of variance test, normality test, analysis of variance and to the test of means at 5% level of significance. The results showed that the main effect (mode of action) was significant for the number of plants with eggs, and from the dose + 5% there was elimination of eggs in all pesticides. For larvae, the doses and mode of action were significant, showing that from the dose + 5% there is control for both modes of action. Additionally, for pupae, only the dose + 10% eradicating pathogens, with the application of the insecticides *Ecoterex* (contact, ingestion and systemic) and *Cypermethrin* (contact and ingestion). On the other hand, for adults the combined and isolated effects did not differ, although the + 5% dose combined with the pesticide *Ecoterex* in systemic application had very low absolute values.

Keywords: insecticide, application technology, corn, *Spodoptera frugiperda*

## **S5.2 - Optimizing root yield of cassava under fertigation and the unknown atmospheric temperature effect**

### 2. Individual abstracts

**John Omondi**<sup>1,2</sup>

Uri Yermiyahu<sup>3</sup>, shimon Rachmilevitch<sup>1</sup>, steve boahen<sup>2</sup>, Pheneas Ntawuruhunga<sup>4</sup>, Eldad Sokolowski<sup>5</sup>, Naftali Lazarovitch<sup>1</sup>

<sup>1</sup> French Associates Institute for Agriculture and Biotechnology of Drylands, Ben-Gurion University of the Negev, 84990, Beer Sheba – Israel

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<sup>5</sup> International Potash Institute, Switzerland

### Abstract

#### BACKGROUND

Fertigation is a rare and an expensive method of fertilizer application to cassava, and hence there is need to optimize its efficiency for profitability and sustainability. This study's objective was to optimize root yield of cassava through fertigation using a logistic model.

#### RESULTS

The field treatments were six fertigation concentrations against three cassava varieties, selected according to their maturity period. The logistic model predicted 52%, 116% and 281% benefit of fertigation for varieties Mweru, Kampolombo and Nalumino respectively. Furthermore, only half of the amount of fertilizer applied for Mweru was required to achieve twice the root yield of Kampolombo. During the experiment, an unknown importance of atmospheric temperature to cassava and its relationship to fertigation was observed. An elevation of 3.7 °C in atmospheric temperature led to 226%, 364% and 265% increase in root yield of Mweru, Kampolombo and Nalumino respectively. Conversely, shoot biomass and root yield declined when the average atmospheric temperatures dropped by 3.6 °C. However, the cold temperatures affected the short- (Mweru) and medium- (Kampolombo) growth-duration varieties earlier, 22 days after the drop, than the long-growth-duration variety (Nalumino)—50 days after the drop.

#### CONCLUSION

Fertigation induced resilience of the shoot biomass production to cold which was most pronounced in the root yield of Mweru in response to the highest fertigation concentration. Thus, while fertigation improved cassava's resilience to cold, it only did so effectively for short-growth-duration varieties. Also, enhanced performance of cassava under increased atmospheric temperature indicated its importance as a climate-smart crop in global warming.

Keywords: growth-equations; fertilizer; irrigation; macro-nutrients; models; root-crops.



### S5.3 - Sustainable cropping systems for pollinator conservation.

#### 2. Individual abstracts

**Gugulethu Tarakini<sup>1</sup>**

Abel Chemura<sup>1</sup>, Robert Musundire<sup>1</sup>

<sup>1</sup> Chinhoyi University of Technology

Although plant pollinator interactions contribute tremendously to food security, with about 35% of food production coming from pollination-dependent crops, there is a decline in pollinators that has been recorded by several studies. Agriculture is considered to be the major drivers to pollinator losses and this study therefore aims to explore sustainable cropping systems that improve pollinator conservation without compromising food production. Foraging preference of bees of the species *Apis mellifera* and *Meliponini species* was determined across different cropping systems and weather conditions. The foraging time and visitation frequency of the bees on monocultures of vegetables (butternut, beans and Indian kale) and diversified systems (combination of Indian kale, beans and butternut) were evaluated at different times of the day. Temperature, wind speed, wind direction, humidity, light intensity were recorded throughout study period. Generalized linear model was used to determine factors influencing visitation frequency and foraging time of the two bee species. Diversified cropping system had a greater visitation frequency by bees compared to monoculture system  $p < 0.001$ . *Apis mellifera* foraging time was significantly higher  $p < 0.05$ , in diversified system compared to monoculture system. *Meliponini species* was not influenced by crop system but crop species, significantly foraging longer in Indian kale compared to Butternut and Beans whereas *Apis mellifera* foraged longer in Butternut. Both bee species were influenced by temperature though differently with *Meliponini species* foraging time increasing with temperature whereas *Apis mellifera* foraging time decreased with increase in temperature. However, temperature interacting with crop system for *Apis mellifera* showed that foraging time increased with increase in temperature. Bee species interspecific competition significantly reduced foraging time of *Apis mellifera*  $p < 0.05$ . To improve pollinator conservation, cropping systems should be diversified to offer forage and habitat needs for a diverse range of pollinators. Farmers are also to consider different methods of regulating temperature in their farms for the protection of diverse pollinators with varying temperature needs especially in the current changes in climate. Interspecific competition for forage resources for *Apis mellifera* species may indicate the low carrying capacity of farm areas hence the need to increase not only diversity but abundance of floral resources to satisfy sustainable bee populations.

Key words: *Apis mellifera*, *Meliponini species*, visitation frequency, foraging time



## **S5.4 - LAND USE SYSTEMS AND SOIL QUALITY INDICATORS IN A FERSSALLITIC (5E) SOIL AT MATOPOS RESEARCH FARM IN ZIMBABWE**

2. Individual abstracts

**Jephias Dera**<sup>1</sup>

NM Zhou<sup>2</sup>

<sup>1</sup> Agronomy Research Institute, Sorghum and Millets Research Unit, Bulawayo, Zimbabwe

<sup>2</sup> Department of Land and Water Resources Management, Midlands State University, Gweru, Zimbabwe

**ABSTRACT**This study investigates soil texture and chemical properties on different land use systems in order to determine soil exchange characteristics that influence land quality. The experiment was carried out at Matopos Research Institute located at longitude 28° 29'E, latitude of 20° 24'S in the year 2019. A completely randomized design (CRD) was used for collecting soil samples for laboratory analyses from four representative land use systems namely: rain-fed fields, irrigation land, fallow and grazing. Data was analyzed using ANOVA. There were significant differences for the soil physical and chemical properties in different land use systems. Exchange properties had significant differences among land use systems. From the findings of this investigation, it was therefore concluded that farmers periodically need to fallow their lands to sequester organic matter, stabilize soil aggregates, improves nutrient cycles for sustainable agricultural production. In addition, for best responses for land management it is important to send soils for analysis for correct fertilizer recommendations.

## **S5.5 - Plant stress tolerance: Realising the global sustainable development goals**

1. Sessions

**Salme Timmusk<sup>1</sup>**

<sup>1</sup> Department of Forest Mycology and Plant Pathology, Swedish University of Agricultural Sciences, Uppsala, Sweden

### **Plant stress tolerance: Realising the global sustainable development goals**

**Salme Timmusk<sup>1\*</sup>, Julian Conrad<sup>2</sup>, Ylo Niinemets<sup>3</sup>, Eviatar Nevo<sup>4,5</sup>, Lawrence Behers<sup>1</sup> Leonid Brodsky<sup>6</sup>, Jonas Bergquist<sup>7</sup> and Steffen Noe<sup>3</sup>**

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In coming decades drought is expected to expand globally owing to increased evaporation and reduced rainfall. Understanding predicting and controlling the plant rhizo- and phyllosphere has potential improve plant responses to environmental stress. Plant beneficial microbial communities (PGPB) influence plant fitness responses to pathogens and abiotic stress factors. Yet in natural settings the bacterial communities are exposed to the enormous variety of complex ever-changing signals<sup>1,2,3</sup>. These factors may help or hinder plant adaptation to rapidly changing environments. In natural settings plants are exposed to the enormous diversity of complex ever-changing signals. These factors may help or hinder plant adaptation to rapidly changing environments. Hence, the endophyte and biofilm community studies have to be performed against a background that integrates state-of-the-art observations at various scales. Here we present studies where plant microbiome interactions, examined at a finer scale, such as high resolution microscopy and next generation sequencing, are linked to the observations at the station for measuring ecosystems atmospheric relations (SMEAR Estonia).

The station follows a multidisciplinary and multiscale approach covering processes in spatial dimensions ranging from nanometres to square kilometres, being thus able to significantly contribute to worldwide measurement networks. Here we present an overview of the station. Integrating plant

breeding/microbiome to ecological background allows ecological know-how based engineering for future forest and agricultural systems maintenance and restoration.

### References:

- 1 Timmusk, S., Seisenbaeva, G. A. & Behers, L. Titania (TiO<sub>2</sub>) nanoparticles enhance the performance of growth-promoting rhizobacteria DOI : 10.1038/s41598-017-18939-x. *Nature Sci Rep* (2018).
- 2 Timmusk, S., Behers, L., Muthony, J., Muraya, A. & Aronsson, A. Perspectives and challenges for microbial application for crop improvement *Front. Plant Sci.*, 1-10, doi:10.3389/fpls.2017.00049 (2017).
- 3 Timmusk, S. *et al.* Paenibacillus polymyxa biofilm polysaccharides antagonise *Fusarium graminearum* DOI:10.1038/s41598-018-37718-w *Nature Sci. Rep.* (2019).

**Session 6. Gender and inclusion in agriculture (SDG 5, 10)**

2021-06-14

10:45 - 11:45

Session 6. Gender and inclusion in agriculture (SDG 5, 10)

## **S6.1 - Influence of Women Empowerment on Smallholder Farmers Poverty Level in Nigeria**

### 2. Individual abstracts

**Maria Ogunnaike<sup>1</sup>**

Funminiyi Oyawole<sup>1</sup>, Mojisola Kehinde<sup>1</sup>, Oluwakemi Fapojuwo<sup>1</sup>

<sup>1</sup> Federal University of Agriculture, Abeokuta, Ogun State, Nigeria

In many Sub-Saharan countries female-headed households are usually poorer and fewer rural female-headed households own agricultural productive resources. Being able to access, control, and own productive assets such as land, labour, finances, and social capital enables people to create stable and productive lives. This is because lack or inadequacy of these productive resources leads to absolute low income, unemployment and undernourishment, and curtails the capability of individual to convert available productive resources to a higher quality of life. However, poverty occurs as a result of impaired access to productive resources as well as inadequate human capital development. Women's uncertain access to land, credit and education denies them exposure to and control of new technologies that might help them out of the mire of poverty. This study examined women empowerment and its effects on poverty level of smallholder farmers in Nigeria. This has become necessary as part of efforts to achieve the Sustainable Development Goals, to end poverty in all its forms everywhere (Goal 1) and achieve gender equality, empower women and girls (goal 5). The study was conducted in selected farming communities reputed for cereal production across the six geopolitical zones of Nigeria and the respondents were drawn in a multi-stage sampling process which was based on primary data collected through cross-sectional survey by personal interview of 1,747 smallholder farmers. Women empowerment scores was obtained under the framework of abbreviated women empowerment in agriculture index (AWEAI), poverty level of smallholders was estimated using Foster-Greer-Thorbecke poverty indices and Probit regression was used to assess the effect of women empowerment on poverty level. Results revealed that mean empowerment score was 0.66 and based on an estimated relative poverty line of N292.91k per day, 48.6% of the farm households were adjudged to be poor with poverty depth and severity of 0.19 and 0.10 respectively. The econometric results revealed that age, years of education, group membership, access to credit and women empowerment indicators are variables that significantly influenced the likelihood of being poor among smallholder farmers in Nigeria. The study therefore concludes that equitable distribution of productive resources among men and women in the household should be encouraged by stakeholders working on empowerment in order to close the gender gap which will enable women to be more productive to take care of their households and also alleviate poverty.

## **S6.2 - Social dimensions of agroforestry adoption – the role of ethnicity and gender**

### 2. Individual abstracts

**Maiphuong Nguyen**<sup>1,2</sup>

Tim Pagella<sup>2</sup>, Nguyen La<sup>1</sup>, Delia C Catacutan<sup>3</sup>, Fergus L Sinclair<sup>2,4</sup>

<sup>1</sup> World Agroforestry (ICRAF), Country office, Hanoi, Viet Nam

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<sup>3</sup> World Agroforestry (ICRAF), Regional office, Bogor, Indonesia

<sup>4</sup> World Agroforestry (ICRAF) Nairobi, Kenya

Farming in uplands with steep slopes and harsh weather conditions are challenging both from a livelihood and environmental perspective, and the pressure is increasing with climate change and population growth. Many ethnic groups living from agriculture populate the upland areas of the Mekong region. During the 1980s, ethnic groups living in the mountainous areas of Vietnam were discouraged from practicing shifting cultivation and their livelihood systems shifted to more settled farming systems which revolve around annual crop cultivation. As their farming systems primarily occur on sloping land covering 75% of the total area, this transformation has resulted in very high levels of soil erosion and recent declines in productivity. Integrating agroforestry systems into these degraded landscapes has the potential to address this degradation process and improve local livelihoods. Moreover, those ethnic minorities have unique social and cultural norms. Agricultural intervention in this region requires understanding the real needs and interests grounded in socio-cultural contexts.

This study applied semi-structure in-depth interview with sixty farmers of Kinh, Thai and H'mong people (50 % men and 50% women) across three provinces of northwestern Vietnam to understand local opportunities, preferences and constraints for adopting agroforestry practices.

Our results showed that whilst farmers from all groups were aware of benefits of using trees in soil conservation, they had different perceptions of the benefits of agroforestry practices, which was likely to influence the types of agroforestry practices they will adopt. All groups stated that it was important that the agroforestry practices had some provisioning function relating to income generation but had differing needs. The H'mong people were interested in increased land, labor and fertilizer utilization, the Thai people highlighted soil erosion reduction and the Kinh people were motivated by soil fertility improvement. This study suggests that farmer's specific social circumstances influence their aspiration and constraints for agroforestry intervention. Perceived behavioural controls to adopting agroforestry practices varied among those ethnic groups and between men and women in each group. Agricultural activities are highly gendered, in which men and women play specific roles and have particular constraints and interests. H'mong men have formal and informal learning channels, while women trust informal information, indicating that current agricultural extension services are not reaching women. Gender-responsive agricultural extension services and interventions are highly recommended. Policies supporting agroforestry need to be tailored for different groups in order to build resilient livelihoods and ensure future environment benefits.

**Session 7. A Swedish Development Research Doctoral Network (SweDocNet):  
Exploring interest & needs (SDG 17)**

2021-06-14

10:45 - 12:15

Session 7. A Swedish Development Research Doctoral Network (SweDocNet): Exploring interest & needs (SDG 17)

## **S7.1 - A Swedish Development Research Doctoral Network (SweDocNet): Exploring interest & needs**

### 1. Sessions

**Fredrik Söderbaum**<sup>1</sup>

<sup>1</sup> Stockholm Environment Institute

This session explores the interest in the possible formation of a doctoral network as part of the Swedish Development Research Network (SweDev).

One of SweDev's priorities is to strengthen research, collaboration and build capacities among Swedish doctoral students in the field of development research. SweDev will facilitate networking and strengthened links among doctoral students, organize workshops and conferences, encourage young scholars to continue working in the development sector. SweDev also intends to establish a colloquium for supervisors and teachers in Swedish PhD programmes in development research.

However, the field is very diverse and heterogenous. A first and preliminary mapping carried out by SweDev identified more than 100 Swedish doctoral programmes related to development research, broadly speaking, across many different disciplines. In addition, a large number of doctoral students doing development-related research belong to academic environments and doctoral programmes where development research is no priority. A number of doctoral students feeling marginalised have also expressed their interests in a Swedish network.

SweDev's Working Group on PhD Education is herewith inviting both PhD students and staff running PhD programmes related to development research (i.e. lectures/leaders/professors etc) to an open session to explore the interest in and needs of a possible SweDocNet.

If you want an issue to be discussed or placed on the agenda, please contact any of the members of the working group before the meeting. Also consult SweDev's website: <https://www.swedev.dev/>



**Session 8. (Part one) Grand masterplans and the mundane everyday (SDG 5, 7)**

2021-06-14

10:45 - 12:15

Session 8. (Part one) Grand masterplans and the mundane everyday (SDG 5, 7)

## **S8.1 - Grand masterplans and the mundane everyday**

1. Sessions

**Patrik Oskarsson**<sup>1</sup>

Linda Engström<sup>1</sup>

<sup>1</sup> Swedish University of Agricultural Sciences

### **Session description**

Over the past few decades, foreign exploitation in land and other natural resources in the rural Global South has boomed, not least in Africa (Carmody, 2016), underpinned by the image of Africa's 'unleashed potential' and 'backward' local communities in need of development. However, on the ground such agendas on agro-investment, conservation and other exploitative enclosures have frequently met fierce resistance. For instance, in several countries, many large-scale agro-investments failed to materialize due to such conflicts (Engström & Hajdu, 2018). Nevertheless, there is increasing recognition that both operational and failed investments can cause severe disruption of local people's livelihoods, often but not always, to the benefit of states and investors. Large-scale investments draw on a set of imaginaries (Jasanoff, 2018) of industrialisation and economic growth, fused with ingrained understandings of development in investor and recipient nations (Lahiri-Dutt, 2016). The formulation of 'dream projects' (Baviskar 2014) usually reproduces economic ideals and technologically advanced futures which may appeal to upwardly mobile middle classes, but also attract or even divide (Hall et al 2015) people from lower classes traditionally on the losing side of dispossession.

This panel examines how grand masterplans of private and public sector developers play out in mundane everyday realities. Why do grand designs of 'dream' investments keep being produced and reproduced while experience contradicts many of their underlying assumptions and purported outcomes? What are the effects of mega-projects in context-sensitive, everyday realities in the rural Global South? And what are the obstacles for development policy to take critical social science into account?

### **Session contributors**

This session brings together a set of scholars across Swedish institutions with one Tanzanian-based scholar who together with co-authors present a wide range of experiences focused on large-scale land acquisition for mega 'dream' projects. The empirical focus is on Africa with 5 of the 7 presenters focusing on this continent, while the Kuns and Visser presentation detail a post-Soviet setting and Oskasson et al. discuss Indian large-scale land use change. Given that we received a larger than expected number of high quality papers we are proposing a double panel session which we hope that the organisers will be able to accommodate. We believe the session offers a great opportunity for mutual exchanges and debate among the scholars and other conference participants across institutions in Sweden.

### **Presenters:**

#### **Engaging the megaproject – practices of fraying and entangling along Kenya's LAPSSSET corridor**

*Theo Aalders, Jan Bachmann, Per Knutsson, Benard Musembi, School of Global Studies, University*

*of Gothenburg*

**The failure of grand agricultural schemes: Exploring the impacts of something that never happened**

*Linda Engström, Dept of Urban and Rural Development, Swedish Univ for Agricultural Sciences*

**The clash between transnational development projects and local life-worlds: The Hidden Social and Cultural Consequences of a REDD+ Project in Kolo Hills, Tanzania**

*Örjan Bartholdson, Dept of Urban and Rural Development, Swedish Univ of Social Sciences, Uppsala.*

**Climate change adaptation and the water-energy-food nexus in Tanzania: Policy Trends and Smallholders' Livelihood Implications.**

*Ronald Boniphace Ndesanjo, Institute of Development Studies, University of Dar es Salaam, Tanzania*

**Utopian visions and resident's experiences of mining investment, Zambia**

*Patience Mususa, The Nordic Africa Institute, Uppsala, Sweden.*

**A comparative and critical history of agroholding farming in Russia and Ukraine**

*Brian Kuns (Swedish University of Agricultural Sciences) and Oane Visser (International Institute of Social Studies, the Hague)*

**India's new coal geography**

*Patrik Oskarsson (Swedish University of Agricultural Sciences), Kenneth Bo Nielsen, University of Oslo, Kuntala Lahiri-Dutt, Australian National University and Brototi Roy, Autonomous University of Barcelona*

**Session format**

- Double panel, 2 x 90 minutes
- Chairs: Linda Engström and Patrik Oskarsson
- Each panel will have a five minute introduction by the chairs and presentation of participants in the room
- Each speaker will get 10 minutes to present. For the panel of 3 speakers this leaves approx. 55 minutes for questions and discussion. For the panel with 4 speakers this leaves approx. 45 minutes for questions and discussion.
- The chairs will prepare discussion questions to spark debate among the authors and engage the audience

**Session 10. Transforming health systems: strategies and impacts (SDG 3, 11)**

2021-06-14

14:15 - 15:45

Session 10. Transforming health systems: strategies and impacts (SDG 3, 11)

## **S10.1 - Laboratory Quality Improvement in Rwanda: A Need for System Approach**

### 2. Individual abstracts

**Vincent Rusanganwa**<sup>1, 2, 3</sup>

Jean Bosco Gahutu<sup>1</sup>, Anna-Karin Hurtig<sup>4</sup>, Magnus Evander<sup>2</sup>

<sup>1</sup> 1. University of Rwanda, College of Medicine and Health Sciences

<sup>2</sup> 2. Umeå University, Department of Clinical Microbiology/virology;

<sup>3</sup> 3. Ministry of Health, Rwanda

<sup>4</sup> 4. Umeå University, Department of Epidemiology and Global Health

## **Laboratory Quality Improvement in Rwanda: A Need for System Approach**

### **Introduction**

To ensure the availability and quality of healthcare, a responsive health system is paramount. This is not only encompassing health system components but ensuring effective complementarity and commitment to deliver quality services. The quality of healthcare is an outcome of quality institutional culture, which is supported by core values such as ownership and spirit of belonging. These values are conveyed by effective leadership through policies, strategies, and monitoring. The health workforce owns the values and efficiently manages health system resources towards quality service delivery. Clinical laboratories are vital in the health system and the quality of healthcare. Reliable laboratory test results are key in guiding decision making for effective prevention, control, diseases' surveillance, and patients' management. Conscient of the role of laboratories in health system strengthening and quality of healthcare, with WHO initiative, many African countries embraced laboratory quality improvement program since 2009 to achieve accreditation. Our research aimed to evaluate the progress of this program in Rwanda.

### **Methods**

A mix-method study combined five clinical referral laboratories' evaluation using the SLIPTA checklist and 20 key laboratory personnel informants' interviews in 2017 and 2018 in Rwanda. Laboratories were scored based on the WHO accreditation 0-5 stars scale and compared to earlier audits from 2010, 2011 and 2012. Twenty key informants' interviews were transcribed verbatim and analyzed using inductive thematic analysis.

### **Results**

Compared with previous audits used the same tool, SLIPTA, our study showed that only one laboratory progressed (from 4 to 5 stars). Four out of the five laboratories decreased, to 1 (three laboratories) and 0 (one laboratory) stars from 4 and 3 stars. Management reviews, evaluation and audits, documents and records, and identification of non-conformities showed a low performance. Insufficient coordination and follow-up system towards accreditation explained the decrease in performance. Personnel's perspectives revealed inadequate resource optimization, lack of regular assessments, ownership of the laboratory workforce, continuous quality improvement (CQI), and

insufficient stakeholders' communication that contributed to low-quality performance.

## **Conclusion**

Four out of five laboratories were not moving towards accreditation. The coordination, follow-up, and assessments of LQMS, in conjunction with training of the laboratory workforce, would establish an institutional culture of CQI towards accreditation and sustainment of quality healthcare. To achieve CQI culture, routine gap-checking and planning for improvement using a system approach would be needed and the role of national and institutional leadership coordination, oversight and monitoring is capital.

## **S10.2 - Transforming community initiatives to sustained healthcare services: experience from Chakaria in rural Bangladesh**

2. Individual abstracts

**Shahidul Hoque**<sup>1</sup>

SMA Hanifi<sup>1</sup>, Shehrin Shaila Mahmood<sup>1</sup>, Abbas Bhuiya<sup>2</sup>

<sup>1</sup> icddr,b

<sup>2</sup> PPD

**Introduction:** Bangladesh is one of the few countries that achieved most of the MDG targets ahead of time and progress is ongoing in health related indicators with effective process of community participation and building grassroots health infrastructures. But sustainability of the programs and processes has remained a big concern in the development arena. In this MDG era icddr,b in Chakaria has initiated a project keeping local community and Self-help Organizations (SHO) at the forefront of health development as 'Self-help for Health'. The project made substantial success in attaining community enthusiasm and skills in developing community leadership in establishing Village Health Posts (VHP) for delivering primary healthcare; creating Skill Birth Attendants (SBA) for maternal health services; Community Paramedics for essential health services and establishing Micro-health Insurance (MHI) in the VHPs for achieving universal Health Coverage. These community initiatives were proactively running during this SDG era (2015 onward). The aim of this paper is to give an insight of how the local level community initiatives sustained since their initiation and its policy implications.

**Methods:** The projects were initiated during 2000-2012 in Chakaria, a rural sub-district under Cox's Bazar district of Bangladesh. The analyses of the initiatives were conducted during 2019, by capturing programmatic data from the SHOs; VHPs; MHI and the persons involved with the initiatives. A Health and Demographic Surveillance System (HDSS) of icddr,b is running long time in Chakaria for collecting social and demographic data from households through real time update of events. Data from HDSS was also used in analysis.

**Results:** HDSS data suggests that, sustained community initiatives have the impact on SDG indicators such as Neonatal mortality rate decreased to 35.7 in 2017 from 40.6 in 2013; Under five mortality rate 61.8 in 2017 from 65.6 in 2013; SBA assistance during delivery is 38.6% in 2017 from 29.7% in 2013. Analyzing programmatic data we found that, 82% (27/33) of SHOs is still operating for their own benefits. Most of the SHOs were established for about 30-40 years. 71% (5/7) of the VHPs sustained with community built infrastructures and services without any outside help. VHPs have their own bank account and fund to run their regular activities. 86% of the SBAs (12/14) has been providing maternal services without icddr,b's support since 2009 and ensured skill assistance during deliveries in their locality. 53% (16/30) of the trained paramedics maintained their profession by providing quality services to the community. Micro-health Insurance has been operational since 2012 and covers more than 10,000 households of which 60% households are poor.

**Conclusions:** Future sustainability of any program depends on past achievements. The experience from the self-help for health approach in Chakaria sets an example for community engagement in health. With effective planning and active participation community engagement has the potential to improve and sustain health outcomes in any particular area. Policy makers, programme

implementers and other stakeholders should invest in empowering community and enaging them in improving health service delivery in order to achieve SDGs.



### **S10.3 - Socioeconomic inequalities in women's health care indicators; has the Ecuadorian health reform produced any impact?**

2. Individual abstracts

**Edy Quizhpe**<sup>1</sup>

Miguel San Sebastian<sup>2</sup>, Enrique Teran<sup>1</sup>, Anni-Maria Pulkki Brännström<sup>2</sup>

<sup>1</sup> San Francisco de Quito University. Medical School

<sup>2</sup> Umeå University, Department of Epidemiology and Global Health, Sweden

#### **Socioeconomic inequalities in women's health care indicators; has the Ecuadorian health reform produced any impact?**

Edy Quizhpe<sup>1,2\*</sup>, Miguel San Sebastian<sup>2</sup>, Enrique Teran<sup>1</sup>, Anni-Maria Pulkki Brännström<sup>2</sup>

<sup>1</sup> Universidad San Francisco de Quito, USFQ, Colegio Ciencias de la Salud. Quito, Ecuador.

<sup>2</sup> Umeå University, Department of Epidemiology and Global Health, Sweden.

#### **Abstract**

**Intruduction:** Universal Health Coverage is a global policy to ensure equitable access to health care services according to health needs. During the last twelve years, Ecuador has implemented a comprehensive health sector reform. While important achievements in terms of health care coverage have been made, the effects of these reforms regarding social inequalities in health have not been analyzed. This study aimed to assess if the health care reform implemented in the decade 2007 - 2017 contributed to reduce the socioeconomic inequalities in women's health care access.

**Methods:** This study was based on two waves of the Living Standards Measurement Survey conducted in Ecuador in 2006 and 2014. Data from women of reproductive age (15 to 49 years) were analyzed to evaluate health care coverage in three indicators recommended by the World Health Organization: skilled birth attendance, cervical cancer screening and use of modern contraceptives. Absolute differences were calculated between the health care indicators and the socioeconomic variables by binomial regression analysis for each time period. The Slope Index of Inequality (SII) was calculated for each socioeconomic variable and period. A multiplicative interaction term between the socioeconomic variables and period was included to assess the changes in socioeconomic inequalities in health care over time.

**Results:** The health sector reform increased access to health in the three outcomes. Regarding skilled birth attendants, significant inequality reductions were observed in all socioeconomic variables except in occupational class. Cervical cancer screening inequalities increased by education and occupation but decreased by wealth. For modern contraceptive use, only a decreased by education was observed.

**Conclusions:** Access to health care increased in the three studied outcomes during the health sector reform. Most socioeconomic inequalities in skilled birth attendance decreased, however only wealth and education inequalities were reduced in cervical cancer screening and use of modern

contraceptives, respectively. Further work is needed to address the social determinants of these health inequalities.

**Keywords:** Health Inequality, Health Reform, Universal Health Coverage, Socioeconomic determinants, Ecuador.

## **S10.4 - Does Governance Plays Key Role in Influencing Public-Private Partnership in Uganda Healthcare System: A Case Study of Uganda Local Health Care System**

2. Individual abstracts

**Samuel Joloba**<sup>1,2</sup>

Daniel Ssentamu<sup>3</sup>, Haruna Batange<sup>1,2</sup>, Isaac Ddumba<sup>2,4</sup>

<sup>1</sup> Community Health Access Foundation Uganda

<sup>2</sup> African Research Center 4 Ageing & Dementia

<sup>3</sup> Kalungu District Local Government

<sup>4</sup> Clinical and Epidemiological Unit: Makerere College of Health Science

### **Background**

Over the past two decades, low Middle Income countries (LMICs) have witnessed the rapid increase in private health sector. In countries with mixed mode of health care financing, private health sectors plays a critical role. In order to achieve Universal Health care coverage (UHC), LMICs should focus on harnessing Public-Private Partnerships (PPPs). As one of the strategies to leverage the available limited resources (especially human, infrastructural and financial), the Ugandan government has embarked on promoting and encouraging the Public-Private Partnership model as a way to improve efficiency and achieve economic growth, national health development, and poverty eradication. However, the implementation process of the PPPH policy in local health care systems is slow.

**Methods:** This study employed a case study approach that allowed in-depth data collection through literature review of relevant studies and documents related to PPPs in health in Uganda. A conceptual framework that identifies and defines the interactions between governance and Public Private Partnerships in health was used to systematize data synthesis and analysis.

**Result:** District level, health sector governance is provided through three oversight structures: the management, governance and partnership structures. District Health office (DHO) assumes stewardship of the health sector through the management structure with coordination of all actors (public and private). The government interacts with private actors through PPP coordination structures, guided by the PPPH policy. There is noted evidence of weaknesses in the functionality of the coordination structures including the private sector governance bodies. The documented reasons includes: inconsistencies in convenings, under-resourced operations, and weak participation of both public and private actors. The study reveals factors that facilitated the PPPH policy development process that included: the historical government-faith based collaboration; the presence of influential private sector (PNFP and PFP) and champions; donor support and influence; a supportive health Minister (after 2010); political will for PPPs; and the proliferation of PFPs that under-pinned government to propagate engagement of private actors among others.

**Conclusions and recommendations:** Sustainable PPPH in Uganda thus calls for stronger coordination and creation of legitimate collaborative frameworks that stipulate mutually agreed goals and provide for balanced participation, informed monitoring, complementarity, transparency, accountability and effective governance structures.

## **S10.5 - Breaking the cycles of poverty: Strategies, achievements, and lessons learned in Los Cuatro Santos, Nicaragua, 1990–2014**

### 2. Individual abstracts

**Elmer Zelaya Blandon**<sup>1</sup>

Carina Källestål<sup>2</sup>, Rodolfo Peña<sup>2,3</sup>, Wilton Perez<sup>2</sup>, Staffan Berglund<sup>4</sup>, Mariela Contreras<sup>2</sup>, Lars-Åke Persson<sup>2,5</sup>

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### **Breaking the cycles of poverty: Strategies, achievements, and lessons learned in Los Cuatro Santos, Nicaragua, 1990–2014**

Elmer Zelaya Blandón, Carina Källestål, Rodolfo Peña, Wilton Perez, Staffan Berglund, Mariela Contreras & Lars-Åke Persson

#### ABSTRACT

##### Introduction:

In a post-war frontier area in north-western Nicaragua that was severely hit by Hurricane Mitch in 1998, local stakeholders embarked on and facilitated multi-dimensional development initiatives to break the cycles of poverty. The aim of this paper is to describe the process of priority-setting, and the strategies, guiding principles, activities, achievements, and lessons learned in these local development efforts from 1990 to 2014 in the Cuatro Santos area, Nicaragua.

##### Methods:

Data were derived from project records and a Health and Demographic Surveillance System that was initiated in 2004. The area had 25,893 inhabitants living in 5,966 households in 2014.

##### Results:

A participatory process with local stakeholders and community representatives resulted in a long-term strategic plan. Guiding principles were local ownership, political reconciliation, consensus decision-making, social and gender equity, an environmental and public health perspective, and sustainability. Local data were used in workshops with communities to re-prioritise and formulate new goals. The interventions included water and sanitation, house construction, microcredits, environmental protection, school breakfasts, technical training, university scholarships, home gardening, breastfeeding promotion, and maternity waiting homes. During the last decade, the proportion of individuals living in poverty was reduced from 79 to 47%. Primary school enrolment

increased from 70 to 98% after the start of the school breakfast program. Under-five mortality was around 50 per 1,000 live births in 1990 and again peaked after Hurricane Mitch and was approaching 20 per 1,000 in 2014. Several of the interventions have been scaled up as national programs.

#### Conclusions:

The lessons learned from the Cuatro Santos initiative underline the importance of a bottom-up approach and local ownership of the development process, the value of local data for monitoring and evaluation, and the need for multi-dimensional local interventions to break the cycles of poverty and gain better health and welfare.

## **S10.6 - Impact of malaria reduction from moderate to low-transmission on seven SDGs**

### 2. Individual abstracts

**Anders Björkman**

#### **Introduction**

In a diversity of studies, high/moderate transmission of *P. falciparum* malaria has shown major negative effects on fetal and maternal survival and newborn health, young child mortality and morbidity, school attendance and performance and thus also probably socio-economic development of children and also women. These are largely restricted association or relatively small intervention studies. Hence there is still not full recognition that malaria is a major obstacle for the 2030 Agenda, at least by the Swedish Global Health community.

Malaria control/elimination in Zanzibar (population 1.5 million) has been uniquely successful bringing moderate transmission to very low between 2004-2007, i.e. pre-elimination stage, sustained until today. This provides unique opportunity to provide comprehensive data on the potential impact of malaria on seven SDGs (1, 3, 4, 5, 8, 10, 17).

#### **Methods**

Trends of a series of recorded reported data to Zanzibar authorities will be analyzed at the Zanzibar Bureau of Statistics. This includes data on public health, education, employment (especially female), tourism, economical development (on an individual, household and national scale).

#### **Results**

All-cause mortality in <5 year-old children decreased by 64% between 2004-2007. Malaria as the cause of fever decreased from 38% to 2% among patients of all age groups attending health centres.

All other trends are not yet analyzed but will be presented.

#### **Conclusions**

An expected conclusion is that almost elimination of malaria will show significant and/or major impact on most if not all the seven SDGs although at different levels. The possible/probable reasons for higher than expected impact on for example mortality will be discussed as well as the trend effects on other parameters and possible confounders. Reasons for neglected recognition of malaria as an important target for accomplishing the SDGs and how to it can be overcome will also be elaborated

**Session 11. Antimicrobial resistance & international Tele-Medicine. How to reach the hardest-to-reach areas? (SDG 3, 10)**

2021-06-14

14:15 - 15:45

Session 11. Antimicrobial resistance & international Tele-Medicine. How to reach the hardest-to-reach areas? (SDG 3, 10)

## **S11.1 - Antimicrobial resistance & international Tele-Medicine. How to reach the hardest-to-reach areas?**

1. Sessions

**Nabil Karah**<sup>1</sup>

Bernt Eric Uhlin<sup>1</sup>

<sup>1</sup> Department of Molecular Biology and Umeå Centre for Microbial Research, Umeå University, Umeå, Sweden.

Antimicrobial resistance (AMR) is a major public health concern worldwide. This session aims to (i) highlight the massive gap in AMR research and real-life practice between economically developed and developing countries, (ii) point out the consequences, (iii) propose solutions, and (iv) identify advantages of sustainable improvements. The session will discuss how information technology and telecommunication can be used to bridge the gap and provide remotely supported education to staff, and services to patients. Tele-microbiology in Humanitarian Crises (TmHC), will be used as a model to demonstrate the on-going challenges, limitations, successes, and potentials of over-cloud engagements.

TmHC aims to tackle AMR in hard-to-reach areas. It provides a platform to share images/videos between local stations in Syria and a virtual room of international experts, which facilitates tutoring and monitoring of clinical microbiology in conflict zones suffering from acute exodus of medical staff. *The World Health Assembly* in 2015 advised a global action plan on AMR, stating that “more resources need to be mobilized to support effective action at national, regional and global levels, including through the provision of technical and financial assistance, particularly to low- and middle-income countries”. TmHC introduces a novel approach to achieve the *United Nations Sustainable Development Goals* 3 (Good health and well-being) and 4 (Quality education) in low-resource settings.

The session will demonstrate the significance of introducing affordable novel technologies into the humanitarian sector. It will discuss the need for more collaboration between academic institutions, government agencies, policy makers, non-governmental organizations, and the beneficiary communities.

Contributors:

**Markus Moll, Sweden.** Dr. Moll is a research advisor and AMR focal point at the *Swedish International Development Cooperation Agency* (Sida). Dr. Moll will give an overview on SIDA’s goals (to enable people living in poverty and oppression to improve their lives) and vision (to safeguard the rights of every individual to live a dignified life). He will focus on how SIDA is contributing to the development of international actions against AMR, and will elaborate on how SIDA, with the aim of promoting equitable health, would facilitate innovative development



approaches targeting hard-to-reach areas, such as the TmHC initiative.

**Chris Houston, Canada.** Mr. Houston is director of *Humanitarian Innovation* at the *Humanitarian Grand Challenge* program (<https://humanitariangrandchallenge.org/>), which aims to identify and support groundbreaking solutions to save the lives of vulnerable people affected by humanitarian crises. The TmHC project is one of fifty-three innovators funded by this program. Mr. Houston will talk about the need for more creative research to maintain sustainable developments in the humanitarian sector.

**Nada Malou, France.** Dr. Malou is a microbiologist referee at *Doctors Without Borders* (MSF) France. She holds a doctorate in microbiology and is a specialist in infectious and tropical diseases. She has been working at MSF since 2012, where she has set up the five MSF France bacteriology laboratories. She is in charge of the *Antibiogo* project (<https://fondation.msf.fr/en/projects/antibiogo>), an inventive and widely needed smartphone application against AMR. Dr. Malou will talk about the invisible burden of AMR in the Middle East.

**Nabil Karah, Sweden/Norway.** Dr. Karah is a researcher at the *Department of Molecular Biology, Umeå University*, and senior medical consultant at the *Norwegian Aid Committee* in Oslo. Karah's research studies focus on hospital-acquired infections and characterization of the molecular epidemiology and AMR features of clinically important bacteria. His work at the *Norwegian Aid Committee* (<https://www.norwac.no/>) involves the management of several humanitarian projects dedicated to cover basic healthcare needs among Syrians affected by the recent crisis. Dr. Karah is the medical supervisor of the TmHC project. He will introduce the TmHC project and highlight the significance of intersectoral and international collaborations.

Session Format:

The invited speakers (Moll, Houston, and Malou) will give oral presentations (15 minutes each), followed by an interactive demonstration (25 minutes) to present/discuss the TmHC project (Karah). The session ends by a debate (20 minutes), where the audience and speakers will be challenged by pre-defined questions on the role of researchers in humanitarian development projects. The session will be chaired and moderated by **Bernt Eric Uhlin**, professor in Medical Microbiology at Umeå University. Prof. Uhlin was the scientific coordinator and founding director of *Umeå Centre for Microbial Research* (UCMR, [www.ucmr.umu.se](http://www.ucmr.umu.se)) and *The Laboratory for Molecular Infection Medicine Sweden* (MIMS; [www.mims.umu.se](http://www.mims.umu.se)).

**Session 12. Public policies, extension and advisory services for advancing sustainable development (SDG 9, 13**

2021-06-14

14:15 - 15:15

Session 12. Public policies, extension and advisory services for advancing sustainable development (SDG 9, 13

## **S12.1 - Scientific Advice and Foresight in Complex Systems: Lessons from Smallholder Fertiliser Subsidy Programme in Kakamega County, Kenya**

2. Individual abstracts

**Joshua Wafula**<sup>1</sup>

Caroline Muchiri<sup>1</sup>, Cory Whitney<sup>1</sup>

<sup>1</sup> World Agroforestry Centre (ICRAF)

Predicting performance of soil fertility interventions is a difficult undertaking, especially when dealing with complex smallholder agricultural systems. Ex-ante impact assessment can provide a solution to this, but there is usually no way of knowing how crops will respond to fertiliser inputs, pest and disease infestations, labour constraints or weather extremes. This paper uses Stochastic Impact Evaluation (SIE) approach to project intervention outcomes on complex agricultural systems. The SIE approach allows for a holistic analysis of intervention cost benefit and risk variables, including those with uncertain and missing information. It also identifies areas that pose decision-critical uncertainties, where further research would lead to clear decision options. We illustrate this approach using a case study from Kakamega County, Kenya, where decision-makers from the Ministry of Agriculture are considering investing in a fertiliser subsidy programme for smallholder farmers, and developing a fertiliser subsidy policy based on the performance of the programme. The County Government has the option of subsidising fertiliser inputs during (i) the long rains season, which is characterized by intensive planting of maize and beans, (ii) the short rains season, which is characterized by small scale planting of beans and in some cases maize, and (iii) sugarcane development, for farmers that intercrop sugarcane with maize and beans. Results indicate that subsidising fertilizer inputs during long rains could be profitable for smallholder farmers. However, the decision to subsidise fertilizer inputs during short rains could be risky. Research on farmer resource allocation during short rains could help to further clarify this investment decision. The decision to invest in fertiliser subsidies for sugarcane development, when farmers intercrop sugarcane with maize and beans, is the most profitable option. Therefore, fertilizer subsidy policy development efforts could focus on encouraging investments in sustainable agricultural intensification. However, interventions emanating from these policies must include a strong monitoring and evaluation component to ensure sustainability. The SIE approach could be used as a learning tool for supporting soil fertility policy development and implementation at county and national level.

## **S12.2 - Livelihood impacts of agroforestry: An integrated systems evaluation from field, household, landscape to policy**

### 2. Individual abstracts

Yoshiko Saigenji<sup>1</sup>

**Quang Tan Nguyen**<sup>2</sup>, Kai Mauschi<sup>1</sup>, Karl Hughes<sup>1</sup>

<sup>1</sup> World Agroforestry (ICRAF), UN Avenue, Box 30677-00100 Nairobi, Kenya

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Research in and on development is under more pressure than ever to show and document resulting impact on the target populations and countries. Donors and concerned government agencies as well as the wider stakeholder landscape expect evidences for the achievements of intended research objectives (e.g. developmental and environmental impacts) as well as the quality and the effectiveness of research. Furthermore, managers of research organizations have realized how lessons learned from assessment can support learning and adaptive management in research projects as well as in the design future research.

Assessing the impacts of an agroforestry (integration of trees into farming systems) project that work at various scales from field through household and landscape to local and country governmental support structures and are embedded in wider CGIAR research programs like Forest, Tree and Agroforestry (FTA) is a challenging task as multiple impact pathways interact and support each other. Additionally, the research undertaken is targeting outcomes from household income, nutrition, gender equity and others, the economic and institutional environment the household is embedded in as well as environmental outcomes like landscape health, climate change mitigation and adaptation as well as the policy level that plays a critical role in facilitating the scaling of identified solutions.

This presentation provides the audience an update of the process as well as the preliminary findings from the application of FTA's impact evidencing strategy in the context of Vietnam with a special focus on the 'Agroforestry for Livelihoods' project which has started in 2011. Various pieces of evidence suggest that the project has generated impacts in terms of adoption of agroforestry management practices, increase in yield for key food staples, poverty alleviation, income diversification, reduction of agricultural-related greenhouse gas emissions, prevention of land degradation and restoration of degraded land. The assessment has started in early 2020 and aims to integrate and solidify quantitative and qualitative evidences that allows for a rigorous assessment of the work undertaken. Findings from the assessment are also expected to contribute to improve learning and experience sharing, as well as the design and management of on-going and future research programs. Most importantly, the experience from Vietnam will contribute to improve impact assessment of complex and integrated programs.

### **S12.3 - Impact of Improved Agricultural Technologies on Household Income, Food Consumption and Dietary Diversity in Ethiopia**

#### 2. Individual abstracts

**Muluken Gezahegn Wordofa<sup>1</sup>**

Chanyalew Seyoum Aweke<sup>1</sup>, Getachew Shambel Endris<sup>1</sup>, Dereje Kifle Moges<sup>1</sup>, Jemal Yousuf Hassen<sup>1</sup>, Debbebe Tolosa Rorisa<sup>2</sup>

<sup>1</sup> College of Agriculture & Environmental Sciences, Department of Rural Development & Agricultural Extension, Haramaya University, Dire Dawa, Ethiopia

<sup>2</sup> Department of Rural Development & Agricultural Extension, Arsi University, Ethiopia

*This study was conducted in East Haraghe Zone of Oromia Regional State and Harari Regional State of Ethiopia. The aim of this study was to examine the impact of agricultural technologies disseminated by Haramaya University. For this purpose, combinations of qualitative and quantitative methods were used. A total of 248 sample respondents were selected for the quantitative survey - distributed to users and non-users of agricultural technologies released by Haramaya University. Qualitative data were collected mainly using Focused Group Discussions (FGDs), Key Informants Interviews (KIIs), and personal observations. A total of 10 FGDs and 14 KIIs were gathered from users and non-users of technologies, district experts, university representatives, and development agents. In addition, observation data were gathered on various livelihood activities, farming practices, Farmers' Training Centers (FTCs), and natural resources. Discourse and thematic analysis were applied in coding and categorizing qualitative data whereas quantitative data were analyzed using Propensity Score Matching (PSM) procedure and descriptive statistics. Results from the econometric analysis show that households who adopted agricultural technologies promoted by Haramaya University have higher household income, dietary diversity and consumption score. This suggests that the dissemination of agricultural technologies by the University had resulted in better household income and food security. Results obtained from the qualitative analysis also show that technologies released by Haramaya University generally have high acceptability and demand by farmers. Farmers have positive impression about the technologies released by the university and its efforts towards promoting household food security and income. However, several factors constrain effective dissemination and adoption of agricultural technologies by farmers. These include low adaptability to agro ecological conditions, irregularities in input delivery, susceptibility to pests and diseases, lack of regular follow-up and feedback mechanism, obsolete technologies, high DAs turnover, limited knowledge and skill in application of the technologies, etc. Overarching policy recommendations for effective technology design and dissemination by the University may include: inclusive technology targeting and gender sensitive and time-saving technologies; reorient to a value chain approach for technology dissemination and adoption; work on post-harvest technologies; tailor-made training and capacity building activities for DAs; strengthening FTCs; and promote multi-stakeholder engagement in implementing technology design and dissemination.*

**Key words:** impact, agricultural technologies, propensity score matching, farm income, food consumption, dietary diversity

## **S12.4 - the role of policy and institutions in greening the charcoal value chain in zambia**

### 2. Individual abstracts

**Mulako Kabisa**<sup>1</sup>

Brian P. Mulenga<sup>1</sup>, Hambulo Ngoma<sup>1</sup>, Mercy Mupeta Kandulu<sup>2</sup>

<sup>1</sup> Indaba Agricultural Policy Research Institute

<sup>2</sup> Ministry of Lands - Department of Forestry

#### Introduction

Deforestation is responsible for 75 percent of the Greenhouse Gas emissions in Zambia. Charcoal is becoming an increasingly important driver of deforestation and forest degradation due to its increasing role as a cooking and space-heating energy source, predominantly among urban households. The erratic and limited supply of electricity in recent times, increased electricity tariffs, and limited access, acceptability, and prohibitive costs of alternative energy sources has increased urban demand for charcoal. Charcoal is a source of income for rural and urban households participating in its production and trade. Given its important role as a source of energy and livelihoods, production and use is likely to increase over time, worsening its negative environmental and health impacts. Thus, reducing charcoal-induced deforestation could aid climate change mitigation and other negative environmental outcomes.

#### Methods

This study was based on an extensive review of literature on current policy frameworks that support sustainable charcoal production and regional best practice; the 2015 Living Conditions Monitoring Survey (LCMS) data to generate descriptive statistics on urban household electricity access and use, and key informant interviews (KII) with actors involved in sustainable forestry management and promotion of sustainable charcoal production. A focus group discussion was held with 15 members of the Choma Charcoal Association in Choma District, the only one in Zambia, who were organized under the FAO funded Forest and Farm Facility program.

#### Results

The main challenges in greening the charcoal value chain include: unorganized production and limited financing towards environmental protection resulting in weak enforcement of regulations.

Zambia has a comprehensive policy framework on sustainable forestry management that recognizes that charcoal use is driven by household energy needs and is a livelihood option. Opportunities for sustainable charcoal production include: Strengthening financing to the Forestry Department by allowing financial and administrative autonomy from revenue that is collected; Raising and realigning funds to the forestry sector using the current tax regime e.g. carbon tax; forming charcoal associations; promotion of efficient cook-stoves; and investigating the seepage of charcoal into the region.

#### Conclusions

In the short to medium term, the focus of interventions must be on financing activities that directly support the organization of charcoal production and marketing, and support towards public engagement on the use of sustainably produced charcoal.

In the long term, alternative livelihoods appropriate for the agro-ecological zones to help producers transition from charcoal production will be necessary for poverty reduction and long-term sustainable development.

**Session 13. Climate change –resilience, mitigation and adaptation (SDG 13, 2)**

2021-06-14

14:15 - 15:15

Session 13. Climate change –resilience, mitigation and adaptation (SDG 13, 2)



### **S13.1 - Climate variability effects on efficiency of subsistence farming: A panel data evidence from small holder farmers in Ethiopia**

2. Individual abstracts

**Fissha Asmare Marye<sup>1</sup>**

Andrius Kazukauskas<sup>1</sup>, Jurate Jaraite-Kazukauskė<sup>1</sup>

<sup>1</sup> Vilnius University, faculty of Economics and Business Administration

*Climate change is markedly affecting different dimensions of human life. The effect is overwhelming in developing countries, where rain-fed subsistence agriculture dominates the lion share of their economy. In Ethiopia, where more than 85% of the population base its livelihood on agriculture, production efficiency is on the heart of agricultural transformation and poverty alleviation. However, the problem that how climate change, the decisive factor in crop production, is affecting the efficiency and adaptation response of farmers is less researched. In particular, studies that tried to examine the efficiency effect of climate change using panel data and geo-referenced plot level climate data are non-existent. This study aims to bring this research agenda under empirical scrutiny using a plot level data from Ethiopian rural farm households. We estimate a true random-effects (TRE) panel data stochastic frontier model, which accounts for heteroscedasticity and heterogeneity in efficiency estimation, on 6640 plots and 929 households. Our results reveal that while the majority of inputs, such as land, labor, asset, and fertilizer (UREA), significantly and positively affect total output, farmers are found inefficient with an average efficiency score of 43%. Furthermore, we find that there is an inverted U-shape relationship between climate change and technical efficiency. Moreover, temperature and weather variability increases the inefficiency of agricultural production. The results of the study imply that policies aimed at improving the production efficiency of farmers should take into account detailed data on temperature and rainfall variability rather than the aggregate amount of temperature and rainfall. It is also vital to account for weather conditions during the harvesting season (Meher Season) rather than the total annual rainfall. Expanding and promoting mixed agriculture in the form of off-farm income activities can be also used as a good strategy to spur efficiency.*

### **S13.2 - Capital Assets Associated with Rural Households' Resilience to Water Scarcity: Evidence from Smallholder Farmers in South Sulawesi, Indonesia**

2. Individual abstracts

**Francisco Xavier Aguilar**<sup>1</sup>

Dienda Hendrawan<sup>2</sup>, Zhen Cai<sup>3</sup>, James Roshetko<sup>2</sup>

<sup>1</sup> SLU

<sup>2</sup> CIFOR

<sup>3</sup> University of Missouri

Water scarcity poses one of the most prominent threats to the wellbeing of smallholder farmers around the world. We studied the association between rural livelihood capitals (natural, human, social, financial and physical) and the avoidance of, adaptation to, or inability to withstand, water scarcity. Proxies for livelihood capitals were collected from two-hundred farmers in South Sulawesi, Indonesia, and their associations with a self-assessed typology denoting water scarcity impacts analyzed with a Taylor-linearized multinomial response model. Physical and natural assets in the form of irrigation infrastructure and direct access to water sources were saliently associated with resilience to water scarcity. Factors associated with the capacity to adapt to water scarcity were more nuanced with social capital being closely linked. Years of farming experience as a form of human capital asset was strongly associated with resiliency. A larger number of family laborers increased the likelihood of inability to withstand water scarcity, but this relationship was reversed amongst farmers with larger farmland areas. We discuss the likely mechanisms that could have contributed to water scarcity resilience and how various capital assets jointly interact with land as one of the most constraining assets among smallholder farmers.

### **S13.3 - The Effect of the Sloping Land Conversion Program (SLCP) on Farmers' Vulnerability to Climate Change**

2. Individual abstracts

**Zhen Liu**<sup>1</sup>

Qiuming Li<sup>1</sup>

<sup>1</sup> Nanjing Normal University

During the late-1990s, China aimed to mitigate the environmental impact of agricultural production by introducing the world's largest "Payment for Environmental Services" program: the Sloping Land Conversion Program (SLCP). As a promising solution to the environmental crisis, the SLCP certainly increased the overall number of environmental services; however, the vulnerability of rural households which, for the most part, depend on agricultural production in developing countries is still questionable, especially in the context of climate change and frequent incidents of extreme weather. The objective of this paper is to examine the mitigating effect of the Sloping Land Conversion Program on the vulnerability of rural households to climate change. Using household-level data from rural China in 2017 and 2018, this study shows that the SLCP significantly reduces the vulnerability of farmers in adapting to climate change, but the effect differs depending on conversion and subsidy rates. With the increase of subsidy rates, farmers will shift from a low-income, part-time livelihood to a partly subsidized, low-income livelihood strategy, thus increasing their vulnerability and sensitivity. The increase of conversion rate, on the other hand, will see farmers change from low-income, part-time jobs to middle- and high-income livelihoods in a "U" path, thus reducing their vulnerability level and enhancing their adaptability to climate change. Therefore, this paper suggests that strategic planning by the SLCP will serve to compensate for the gap between the livelihood of the bottom-level farmers and the top-level policy design, guide the improvement of farmers' livelihood, and enhance their adaptability to climate change.

**Session 14. Dialogue on opportunities and needs within Development Research,  
with Swedish Research Council's Committee for Development Research and  
Sida's Unit for Research Cooperation**

2021-06-14

14:15 - 15:45

Session 14. Dialogue on opportunities and needs within Development Research, with Swedish  
Research Council's Committee for Development Research and Sida's Unit for Research Cooperation

## **S14.1 - Dialogue on opportunities and needs within Development Research, with Swedish Research Council's Committee for Development Research and Sida's Unit for**

### 1. Sessions

#### **Dan Wilhelmsson<sup>1</sup>**

The Committee for Development Research Swedish Research Council<sup>1</sup>

<sup>1</sup> The Committee for Development Research, Swedish Research Council

#### **Session description**

Within the subject area Development Research, Swedish Research Council funds research of relevance for poverty reduction and sustainable development in low income countries, as well as provide support for collaboration with researchers in low income and lower middle-income countries.

The research supported includes all scientific disciplines, and research can aim either towards immediate benefit or towards knowledge that is potentially important in the longer term.

The Committee for Development Research, consisting largely of active researchers, is the decision making body of development research, issues calls, and follows up, evaluates and develops strategies for the subject area.

In this session, the committee, in collaboration with Sida's Unit for Research Cooperation, invites researchers to a dialogue, to further develop the subject area, in particular as the Swedish government is currently drafting a new strategy for development research for the period 2022-2028,

Opportunities within development research at Swedish Research Council, including calls planned for 2022, will also be presented.

#### **Session contributors**

-The Committee for Development Research, Swedish Research Council\* (Presentation of the committee and the goals of the session by the Chair and members of the committee)

- Prof. Erik Ahlgren, Deputy Secretary General for Development Research, Swedish Research Council (Presentation of strategy, activities and current issues)

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\* *The Committee for Development Research*

*Ingrid Öborn Professor, Dept. Crop Production Ecology, Swedish University of Agricultural Sciences (Chair)*

*Eleni Aklillu, Professor, Division of Clinical Pharmacology, Karolinska Institutet*

*Tomas Sundnes Drønen, Professor, Global Studies and Religion, School of Mission and Theology, Stavanger, Norway*

*Anna-Karin Hurtig, Professor, Department of Epidemiology and Global Health, Umeå university*

*Bengt-Erik Mellander, Associate Professor Department of Physics, Chalmers*

*Ola Olsson Professor, Department of Economics, School of Business, Economics and Law, Gothenburg University*

*AnnaMaria Oltorp, Head of the Research Cooperation Unit, Sida*

*Anders Tegnell, Head of department, Public Health Agency of Sweden*

*Sofia Thorsson, Professor, Department of Earth Sciences, Gothenburg university*

### **How the session will be run**

Presentations (total 20 min.) will be followed by Q&A and a dialogue where participants are asked to provide inputs and advice on selected issues.

**Session 15. Sustainable living conditions and inclusion for all? Bridging the gap between research and practice to achieve social sustainability in a growing city (SDG 11, 12)**

2021-06-14

14:15 - 15:45

Session 15. Sustainable living conditions and inclusion for all? Bridging the gap between research and practice to achieve social sustainability in a growing city (SDG 11, 12)

## **S24.1 - Sustainable living conditions and inclusion for all? Bridging the gap between research and practise to achieve social sustainability in a growing city**

### 1. Sessions

Linda Gustafsson<sup>1</sup>

Pernilla Helmersson<sup>1</sup>, Urban Markström<sup>2</sup>, Lina Berglund<sup>3</sup>, Ebba Högström<sup>3</sup>, Eva Wikström<sup>2</sup>, Madeleine Eriksson<sup>2</sup>, Malin Eriksson<sup>2</sup>, Nawi Ng<sup>4</sup>, Ailiana Santosa<sup>4</sup>, **Liv Zetterberg**<sup>2</sup>

<sup>1</sup> Umeå municipality

<sup>2</sup> Umeå University

<sup>3</sup> Blekinge Institute of Technology

<sup>4</sup> University of Gothenburg

### **Session description**

Transforming societies towards sustainable development requires close collaboration between research and practice but most often, the research-to-practice gap is wide. During this session we will present and discuss ongoing collaborations between municipal officers in Umeå municipality and researchers at Umeå University within the field of social sustainable development in a growing city. The municipal Commission for a socially sustainable Umeå will be presented, together with three ongoing Formas funded research projects carried out in collaboration with Umeå municipality. Two projects explore how to ensure sustainable housing situations for groups that might meet particular challenges with regards to housing; immigrants and mentally disabled people, while the third project investigates how the concept of social capital can be used as a tool in the planning and design of social sustainability living environments for all. These ongoing projects are dependent on dialogue and collaboration between researchers and practitioners, which gives opportunities to bridge the gap between research and practice, not least regarding how research can meet the needs of practice in guiding urban planning towards social sustainable development.

The aims of the session are to present and discuss prerequisites for collaboration between practice and research within the field of social sustainability: What are the challenges and opportunities? How to best combine the needs and knowledge from practice with theory and methods in research? How do we generate knowledge on how to achieve social sustainability that is timely, useful for practitioners and at the same time based on systematic research methods?

### **Session contributors**

Presentation of the Commission for a socially sustainable Umeå (10 min)

- Linda Gustafsson, Gender equality officer and coordinator for the Commission for a social sustainable Umeå, Umeå municipality, Sweden
- Pernilla Helmersson, Urban planner, Umeå municipality, Sweden

Presentation of the project: *LEX – sustainable Living Environments for people with psychiatric disabilities. Aligning housing planning and social services through eXperimental collaborative*



*practices (10 min)*

- Urban Markström (head of the project), Professor, Department of social work, Umeå University, Sweden
- Lina Berglund Snodgrass, PhD, Department of spatial planning, Blekinge Institute of Technology, Sweden
- Ebba Högström, PhD, Department of spatial planning, Blekinge Institute of Technology, Sweden

Presentation of the project: *A place for everyone? Sustainable housing and social integration among newly arrived refugees (10 min)*

- Eva Wikström, (head of the project), PhD, Department of social work, Umeå University, Sweden
- Madeleine Eriksson, PhD, Department of Geography, Umeå University, Sweden

Presentation of the project: *Social capital as a resource for the planning and design of socially sustainable and health promoting neighbourhoods: A mixed method study (10 min)*

- Malin Eriksson (head of project), PhD, Department of social work, Umeå university, Sweden
- Nawi Ng, Professor, Department of public health and community medicine, University of Gothenburg, Sweden
- Ailiana Santosa, PhD, Department of public health and community medicine, University of Gothenburg, Sweden
- Liv Zetterberg, PhD, Department of social work, Umeå university, Sweden

#### **Information about how the session will be run**

Session contributors will briefly present the Commission for a socially sustainable Umeå as well as the ongoing research projects, focusing on how the collaboration between research and practice is carried out. Both practitioners and researchers will share and discuss their different experiences of challenges and opportunities for research-practise collaboration. The audience will be engaged through group discussions on predetermined topics, where participants will be encouraged to discuss their own experiences of collaboration between research and practice. The session will end by asking all groups to share some of their discussions with the broader audience.

The session will be moderated by Linda Gustafsson, coordination for the Commission for a socially sustainable Umeå .

**Session 17. Gendered critiques and transformations for sustainable development (SDG 12)**

2021-06-14

14:15 - 15:45

Session 17. Gendered critiques and transformations for sustainable development (SDG 12)

## **S17.1 - Women's Places and Men's Spaces? - Reproduction and transgression of gender ideologies in Kenya and Nigeria**

2. Individual abstracts

**Johanna Bergman Lodin**<sup>1</sup>

<sup>1</sup> Swedish University of Agricultural Sciences, Dept of Urban and Rural Development

Gender is intricately bound up with space, place and mobility, which structure a normative landscape where everything and everyone is, or *should be*, in place. But what happens when women and men transgress traditional gender ideologies and moral geographies? Here, I explore this specifically by considering women that are working and men that are carrying out domestic chores in Western Kenya and Southwestern Nigeria. I analyze four case studies that draw on 28 focus group discussions and 32 individual interviews with a total of 225 rural and peri-urban women, men and youth to chart the discursive and disciplinary attempts to maintain prevailing gender hegemonies, with their idealized images of Woman and Man. I show that women's productive labor, and even more so men's reproductive, is constructed as 'out of place' in my study sites. Studying specific, gendered actions on the margins of what is allowed, in this case facilitated by the vignette method, also supports a deeper understanding of what is considered 'normal', 'natural' and 'in place'. My findings draw attention to the need for gender transformative approaches in relation to research and development interventions to challenge and change gender ideologies that enable gender disparities to exist and persist.

## **S17.2 - An explorative study on the importance of time as an indicator for shaping gender and social intervention towards achieving sustainable development**

2. Individual abstracts

**MEGHAJIT SHARMA SHIJAGURUMAYUM<sup>1</sup>**

**LOUKHAM DEVARANI<sup>2</sup>**

<sup>1</sup> PhD. Scholar (Agricultural Extension), University of Agricultural Sciences (Bangalore), India

<sup>2</sup> Associate Professor (Agricultural Extension), CPGS, Central Agricultural University (Imphal), India

### **INTRODUCTION**

Despite the many existing social and economic interventions aimed at achieving gender equality and assuring equal access to social assets and services, women from rural farm households are constrained by their household responsibilities and societal norms from accessing the benefits of these services and interventions. Because of their roles as a caretaker and a caregiver, farm women do not get enough time left with them to participate in the rural and agricultural developmental programmes.

The study was conducted in one of the poorest states of India, Manipur which belongs to the North-Eastern region of the country. The main intent of the study is to highlight the workover load and time poverty the rural farm women of the state is suffering from, which ultimately resulted to their lack of involvement and participation in developmental programmes.

### **METHODOLOGY**

Time use survey was conducted in the Imphal West district of Manipur, India. 91 farm households were randomly selected from four randomly selected villages of the district. For the purpose of intra-household comparison and to derive a gender disaggregated data, the primary male and primary female member of each of the selected household were taken as respondents. Thus, a total of 160 respondents constituted the sample of the study as 22 households were female headed with no male figurehead. Data were collected using pre-tested interview schedule.

### **FINDINGS**

The present study captured that the female head respondents had the heaviest workload with 13.14 hours of a day spent on work related activities. Primary female from male headed households had a workload heavier than their male counterpart with a workload of 12.12 hours spent on work related activities while the primary male members spent about 11.04 hours on work and domestic activities. The findings showed how farm women were struck with time poverty.

### **CONCLUSION**

The findings from the present study reflects the requirement of targeted intervention with a view to reduce the workload of the female head since they were found to have a very heavy workload with little time left to themselves for their own wellbeing. The finding also resonates with the fact that

any social interventions despite the various benefits and assurances it promises to provide would ultimately fail to reach the populace who actually are in need of special aids and provisions if the time and workload of the potential beneficiaries aren't put into consideration during the formulations of the developmental programmes.

### **S17.3 - The problematization of gender inequality in Rwanda's agricultural policy: discursive practices, gendering effects and alternative problematizations**

2. Individual abstracts

**Karolin Andersson**<sup>1</sup>

Katarina Pettersson<sup>1</sup>, Johanna Bergman Lodin<sup>1</sup>

<sup>1</sup> Swedish University of Agricultural Sciences

#### **Introduction**

The topic of this paper addresses the understudied discursive practices and gendering effects of agricultural policy in contemporary African neoliberal agricultural restructuring, known as the 'New Green Revolution for Africa'. While there are studies on both gender and discourse in African agricultural policy, the role of such policy in constituting problems and subjects in gendering ways remains largely uncharted in the environmental and development fields.

#### **Methods**

Drawing on feminist poststructuralist theory and Bacchi's 'What's the problem represented to be' (WPR) approach to analyzing policy, we analyze how gender inequality is represented as a problem in the texts of Rwanda's agricultural policy. Through in-depth analysis of 10 national agricultural policy and strategy documents, we explore how dominant discourses legitimize some problem representations while suppressing others, and how the social categories of 'women' and 'men' are constituted in specific ways.

#### **Scientific relevance**

The analytic approach enables us to challenge taken for granted knowledges, opening up for alternative representations of the problem of gender inequality and highlighting the political and gendering character of seemingly apolitical and neutral governance tools.

#### **Results and conclusion**

We find a dominant discourse on masculinist agricultural modernization that legitimizes gender inequality as a problem primarily of women's low agricultural productivity. This discourse effectively confines solutions to gender inequality in Rwandan agriculture to the economic realm. Assumptions of gender as binary and homogenous, a focus on women's disadvantage, and a differences approach to gender reproduce subject positions of women and men farmers that support hegemonic gender relations. Alternative problematizations and discourses emerge in some of the policy documents, however they are largely suppressed. These alternative discourses constitute women and men in ways that contradict and/or resist prevailing gender subjectivities and give precedence to practices of power, social injustice and equity over economic and agricultural growth.

## **S17.4 - Sustainable Cities, Health, Urban Food Systems - A Feminist Geographic Analysis of Perceptions of Food and Health in Ugandan Cities**

2. Individual abstracts

**Heather Mackay**<sup>1</sup>

<sup>1</sup> Umeå University

Sustainable Cities, Health, Urban Food Systems - A Feminist Geographic Analysis of Perceptions of Food and Health in Ugandan Cities

### Introduction

This paper contributes to a feminist geographic analysis of how urban food and health environments and non-communicable disease experience may be being constructed, and contested, by healthcare professionals (local elites) in two intermediate-sized Ugandan cities (Mbale and Mbarara). It relates to the sustainable development goals of no poverty, zero hunger, good health, and sustainable cities. The research question was twofold: how do healthcare professionals in these cities experience, understand and interpret the food and health environments of the people they support? Secondly, what factors, processes or behaviours, in their experience, may be influencing perceived changes in food and health circumstances? I was interested in how healthcare personnel represented such phenomena, and whom they described as being more, or less, affected.

### Method

I use thematic and group interaction analysis of focus group data to explore material and discursive representations of urban bodies and eating behaviours and food access.

### Results

Findings make explicit how healthcare professionals had a tendency to prescribe highly classed and gendered assumptions of bodies and behaviours in places and in daily practices. This permeated down to such mundane topics as who does the food shopping, and what (and how often/how much/in what form) people ate. The work supports the discomfort some have felt concerning claims of an African nutrition transition, and is relevant to debates regarding double burden malnutrition. I argue that a feministic analysis, and an intersectional appreciation of people in places, is advantageous to food and health-related research and policy-making.

### Conclusion

The feminist geographic lens I apply reflects the hallmarks of a feminist approach, being concerned with interrogating power relations, geographic scales, a suspicion of binaries, a preference for relational analysis and a grounded contextual understanding. Results uncover and deconstruct a dominant patriarchal tendency towards blaming women for obesity. Yet findings also exemplify the co-constructed and malleable nature of knowledge and understandings, and this offers encouragement.

Keywords: feminist geography; Uganda; food; non-communicable disease; nutrition transition; obesity

**Session 18. The governance, design, and practice of aid (SDG17)**

2021-06-15

10:45 - 12:15

Session 18. The governance, design, and practice of aid (SDG17)



## **S18.1 - Integration conundrums: framing and responding to combined climate and conflict challenges in Swedish development cooperation**

2. Individual abstracts

**Veronica Brodén Gyberg**<sup>1</sup>

Malin Mobjörk<sup>2</sup>

<sup>1</sup> Linköping University

<sup>2</sup> Stockholm International Peace Research Institute (SIPRI)

Although there is ongoing debate about the causal mechanisms linking climate change to violent conflict, researchers and policymakers widely agree that climate change exacerbates existing vulnerabilities that undermine human security and societies' well-being. Resource scarcity and natural disasters can lead to increased cooperation, but the double burden of climate change and political fragility constitutes a serious challenge and the most detrimental effects are seen in already fragile contexts. Due to the importance of preventive measures, development organizations are key in addressing and mitigating the combined challenges of climate and conflict. Such organizations are conceptualizing and integrating security risks posed by climate change, but previous research shows that this work is hampered by organizational silos. This paper contributes to the burgeoning research on integrated approaches to addressing combined challenges of climate and conflict by organizations through examining how the Swedish International Development Cooperation Agency (Sida) works with these issues. In 2015, Sida received an updated directive increasing ambitions for the integration of the thematic issue areas of environment and climate, conflict and gender. The paper uses a comprehensive understanding of security and applies insights on mainstreaming in official development assistance (ODA) from environmental policy integration literature to examine how the connections between climate and security are framed in central policies, in strategies and by Sida staff. It also analyzes how Sida's organization and procedures support the integration of the two perspectives 'environment and climate' and 'conflict' and highlights challenges and opportunities that arise when translating policy and strategy into practice. The study is based on an analysis of overarching instructions, policy documents and interviews with 24 Sida staff at Sida's headquarters in Stockholm and at Swedish Embassies in Eastern Africa. The experience of Sida is an illustrative example of an emerging challenge for ODA actors, and can therefore be valuable for a broad set of organizations also aiming to develop integrated approaches. The study shows that although Sida prioritizes the integration between environment and climate, and conflict on a general policy level, there are some challenges when translating the policy into practice. Ambiguities are identified with regard to concepts used and there are tensions between expert and general knowledge. There are many initiatives aiming to integrate climate and conflict with one another, but increased collaboration on operationalization could enable even deeper levels of integrated work.

## S18.2 - Making sense of complexity approaches in development interventions

### 2. Individual abstracts

Odirilwe Selomane<sup>1</sup>

Andrea Downing<sup>2</sup>, **L. Jamila Haider**<sup>3</sup>

<sup>1</sup> Centre for Complex Systems in Transition, Stellenbosch University

<sup>2</sup> The Royal Swedish Academy of Sciences

<sup>3</sup> Stockholm Resilience Centre, Stockholm University

There have been increasing calls to use complexity thinking in designing, implementing and monitoring international development interventions. These calls recognise that while many development interventions yielded success in improving the lives of millions of people around the world, they have not yet addressed structural underpinnings which created these problems in the first place. The movement to use complexity in development coincides with growing literature on complexity theory which suggests that change is not linear, cannot be predicted, is characterised by emergence, and that social and ecological systems are highly interconnected. These complexity ‘features’ are proposed by researchers as useful lenses through which to view the world around us. There is however a gap in the literature in terms of how complexity theory can be applied to real world problems, and to development policy and practice specifically. In this paper we set out to understand how complexity is currently applied in development interventions. We reviewed a broad scope of literature (Complexity and Development) which we narrowed to 31 relevant papers (case studies of interventions) and reviewed in-depth. Our review reveals three broad categories of complexity approaches, namely: (1) ‘textbook complexity’ which often originates from academic descriptions of systems in generalisable terms, (2) complexity approaches as developed by development practitioners and stipulated in policy and practice, and (3) complexity as understood from the reality within contexts and often surfaced by hindsight reflection of the development intervention. We identify how complexity is incorporated in each of these categories by analysing how they approach the problem, solution, knowledge, and monitoring. Our results show, for example, that academic frameworks on complexity tend to focus on problem formulation, development implementation of complexity tends to focus more on outcomes and monitoring, and post-hoc analyses often highlight existing knowledge and the need for more learning from the entire development process. In other words, our results show that (true to a complexity approach) we cannot expect a linear trickling-down of knowledge informing action resulting in expected outcomes. We conclude that the potential for development interventions to take a complexity approach is there, but that it will require a re-think of the knowledge-action interface

### **S18.3 - Designing development interventions for transformational change: A methodological approach.**

#### 2. Individual abstracts

**Fiona Lambe**<sup>1</sup>

Matthew Osborne<sup>1</sup>, Ylva Ran<sup>1</sup>

<sup>1</sup> Stockholm Environment Institute

Innovative approaches are required to ensure that development programmes deliver transformative outcomes for vulnerable communities. We present a transdisciplinary methodological approach that combines service design, complex-adaptive-systems thinking and insights from behavioural science and can support the design and implementation of development interventions. Specific methods include user journey mapping, system mapping, solution prototyping, and (where useful) quantitative experiments. Since 2015, the approach has been applied in ten cases in low income settings to support programme and project design in a range of topic areas, including weather index insurance and harvesting technologies for small scale farmers, and the design of clean energy service systems for households and communities. In this session we present an example of how the approach was applied to enhance the design of a clean cookstove intervention in peri-urban Nairobi.

Household air pollution from cooking indoors with biomass is a serious public health problem in most sub Saharan African countries. Decades of efforts to replace “traditional” polluting cooking methods have fallen short of expectations, typically because newly introduced stoves are only used for a short time or fail to fully displace existing methods. Efforts to address this challenge have tended to overlook the heterogeneity of users’ needs and experiences in favour of rational economic or technical explanations of clean cookstove adoption. Applying our approach, we identified three distinct user archetypes, based on their motivations for trying new stoves. Different critical weaknesses in the service system associated with stove use were identified from the perspective of each archetype, and a co-design process was initiated to address these problems, involving stove users and other important actors in the Kenyan cookstove sector. The study contributes practical recommendations for cookstove programmes on how to embed the needs of different types of users and argues that the concept of “service system” could be useful when designing programmes that have multiple development objectives

**Session 20. (Part one) Engendering rural transformation for sustainable development (SDG 1, 2)**

2021-06-15

10:45 - 12:15

Session 20. (Part one) Engendering rural transformation for sustainable development (SDG 1, 2)

## **S20.1 - ENGENDERING RURAL TRANSFORMATION FOR SUSTAINABLE DEVELOPMENT**

### 1. Sessions

LINLEY CHIWONA-KARLTUN<sup>1</sup>

KAROLIN ANDERSSON<sup>1</sup>, LETTICE RUTASHOBYA<sup>2</sup>, LEMAYON MELYOKI<sup>2</sup>, ALFRED BIZOZA<sup>3</sup>, ANNE KUBAI<sup>4</sup>, CAROLINE WAMALA LARSSON<sup>5</sup>, MESIA ILLOMO<sup>2</sup>, MOHAMED SEMKUNDE<sup>2</sup>, MEREZIA WILSON<sup>2</sup>, NATHAN KANUMA TAREMWA<sup>3</sup>, **EULARIE MUTAMULIZA<sup>3</sup>**

<sup>1</sup> SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES

<sup>2</sup> UNIVERSITY OF DAR ES SALAAM

<sup>3</sup> UNIVERSITY OF RWANDA

<sup>4</sup> SÖDERTORN UNIVERSITY

<sup>5</sup> STOCKHOLM UNIVERSITY

### **Purpose and Topics Covered in bold**

In the face of affirmation and consensus that agricultural growth that benefits both women and men is necessary if broad-based and inclusive economic growth and poverty reduction is to be meaningful, low-income countries, research and academic institutions have not invested enough in promoting and studying **agriculture/agribusiness**, and less so from a **gender perspective**.

Agriculture and **agribusiness research** has mainly adopted a myopic view of a single actor, the farmer. We argue that the failure of agriculture to function as an engine of growth stems not only from 'production' considerations but from the organization and performance of the **value chain as a system** where coordination with urban markets, linkages between farmers, traders and processors, diffusion of knowledge, **women's and men's specific positions and outcomes in the value chains, policy and support structures** are all pertinent. In SSA 60.5% of population reside in rural areas. **Livelihoods** are dependent on agriculture and all its processes, i.e. gender relations, economic structure, land distribution and everyday practices. As these processes occur spurred by global changes, **rural areas transform, technologically, demographically, socio-economically, politically as well as ecologically and influenced at several spatial levels**. These changes interact with the **agency of social actors** and entail that **structures and institutions, cultural and social norms, including values**, adapt to this rapid **rural transformation**.

**The Panel will interrogate:** how scientists, practitioners and policy makers can contribute to broad-based agricultural growth, SDG 2, 8,10; and inclusive poverty reduction SDG1; through knowledge-creation; in regard to rural transformation, gender and agribusiness entrepreneurship SDG5.

### **Session Contributors**

1.Lettice Rutashobya – University of Dar es Salaam, School of Business, Tanzania

### **Serial and Portfolio Female Entrepreneurs in Rural Areas: Motivations, Outcomes, and Benefits**

Female entrepreneurs are increasingly identified as “drivers of African prosperity”.

2. Johanna Bergman Lodin - SLU

**Entrepreneurship as empowerment? Gendered opportunities and challenges in entrepreneurial urban and peri-urban agriculture in Rwanda**

Peri-urban and urban agriculture and empowerment

3. Alfred Bizoza – University of Rwanda

**Effective Institutional Partnerships for Greater Research Impacts on Agricultural Value Chains Development in Rwanda**

Translating science into practice and policy

4. Anne Kubai, Södertorn University

**Gender equality and women's empowerment in rural Rwanda: capacity to make effective choices and to translate them into desired actions and outcomes, unfettered by cultural sanctions**

Gender equality and women's empowerment

5. Lemayon Melyoki, University of Dar es Salaam,

**African women as entrepreneurs transforming the rural entrepreneurial ecosystem**

Understanding the rural entrepreneurial ecosystem

6. Caroline Wamala Larsson, Stockholm University

**The gendering of technology, or the technology of gendering; reconsidering access to and use of information in agriculture and their contribution to continued subsistence methods**

Gender and technology in agriculture

7. Eularie MUTAMULIZA

**Role of Microfinance Banks in Enhancing Small and Medium Enterprises among Rural women in Rwanda: An Empirical study.**

Financing in rural

8. Linley Chiwona-Karlton, SLU

**African Cuisine Cookbooks through rural women's knowledge *Les Delices de Mikese (Insect Delicacies)***

Launch of an African Cookbook. Translating Science into Practice To promote well-being and responsible consumption

**Student Elevator Pitches**

1. Mesia Illomo,

**Gendered participation in the rice value chain: Exploring the how and why**

PhD Candidate, Tanzania

2. Merezia Wilson,

**Women rural agribusiness-entrepreneurship: beyond farming and processing**

PhD Candidate, Tanzania

3. Mohamed Samkunde,

**Structures that promote women producer groups: from external drivers to self-employment for rural entrepreneurship prosperity**

PhD Candidate, Tanzania

4. Nathan Taremwa, PhD Candidate, Rwanda

**Determinants of Access to Agricultural Credit among Rice and Maize Smallholder Farmers in the Eastern and Western Provinces of Rwanda**

PhD Candidate, Rwanda

**Format of the Panel**

This panel will have six engaging and diverse talks representing Rwanda, Sweden and Tanzania. They will each have 10 minutes talk. The session will be split into two. Three speakers then a 10-minute Q & A form the audience and one point summary.

The second session will follow with another three presentations and a 10-minute Q & A and one point summary. Thereafter the PhD doctoral candidates will make four elevator pitch presentations of their paper 3 minutes each.

During coffee-break the African Cookbook Les Delices de Mikese (Insect Delicacies) will be introduced and available for perusal and orders.



**Session 21. The demographic transition: health impacts and systems responses  
(SDG 3, 10)**

2021-06-15

10:45 - 12:15

Session 21. The demographic transition: health impacts and systems responses (SDG 3, 10)

## **S21.1 - Responsiveness of The Health Care System Towards The Elderly In Tanzania: Does Health Insurance Make a Difference?**

2. Individual abstracts

**Paul Amani**<sup>1</sup>

Malale Tungu<sup>2</sup>, Anna-Karin Hurtig<sup>3</sup>, Angwara Kiwara<sup>2</sup>, Gasto Frumence<sup>2</sup>, Miguel San Sebastian<sup>3</sup>

<sup>1</sup> Mzumbe University Tanzania

<sup>2</sup> Muhimbili University of Health and Allied Sciences

<sup>3</sup> Umea University

### **Abstract**

#### **Introduction**

Responsiveness has become an important tool in evaluating the ability of the health care systems to meet the expectations of the patients. However, its measurement in sub-Saharan Africa remains scarce. This study aimed to assess the responsiveness of the health care services among the insured and non-insured elderly in Tanzania, in order to contribute with relevant knowledge to improve the performance of health insurance among the elderly in the country.

#### **Methods**

This is a cross-sectional study where a pre-tested household survey administered to the elderly (60 years +) living in two rural districts was used. Participants with and without health insurance attending outpatient and inpatient health care services in the past three and twelve months were selected. Responsiveness was based on the WHO-SAGE questionnaire, which included the dimensions of quality of basic amenities, choice, confidentiality, autonomy, communication, and prompt attention. Quantile regression was used to explore the specific association of the responsiveness index with health insurance and socio-demographic factors.

#### **Results**

A total of 1453 and 744 elderly, of whom 50.1% and 63% had health insurance, used the outpatient and inpatient health services respectively. All the different domains were rated relatively high but the uninsured elderly reported better responsiveness in all domains of outpatient and inpatient care. Waiting time was the dimension that performed worst. Possession of health insurance was negatively associated with responsiveness in outpatient (-1; 95% CI: -1.45, -0.45) and inpatient (-2; 95% CI: -2.69, -1.30) care.

#### **Conclusion**

The uninsured elderly reported better responsiveness than the insured elderly in both outpatient and

inpatient care. Special attention should be paid to those dimensions, like waiting time, which ranked low. Further research is necessary to reveal the reasons for the lower responsiveness among insured elderly. Continuous monitoring of the health care system responsiveness is recommended.

Keywords: Health Insurance, Responsiveness, Elderly, Tanzania

## **S21.2 - Gender differences in all causes and cause specific of mortality among Older Persons in Rural Uganda: Implication to the health care system**

2. Individual abstracts

**Isaac Ddumba**

Stephen Joloba<sup>1</sup>, David Kasibante<sup>1</sup>

<sup>1</sup> Community Health Access Foundation

**Background:** Demographic and health transitions observed in Low and Middle Income Countries (LMICs), have led to improvement in life expectancy. A rise in population aging within LMICs- especially in Sub-Saharan Africa (SSA), may pose a threat to the already over stretched health care systems. Gender disparities in mortalities among older persons have been documented mostly in developed countries. Although women live longer than their male counterparts, but spent most of their years with ill health than older men. Information on gender difference on all causes and cause specific mortality, is vital for addressing the functionality of the health care system, and contributes to the achievement of sustainable development goals. However, there is paucity of data on mortality rates in advanced age. This study aims to describe the gender disparities in mortality rates in advanced age and their implication for the health systems in the rural SSA context.

**Methods:** We analyzed retrospectively 1513 deaths that occurred among older persons aged 50 years and above, between 1<sup>st</sup> January 2006 to 31<sup>st</sup> December 2016. verbal autopsy of deaths is captured in Health Demographic Surveillance Site (HDSS) in Iganga-Mayuge district. All data analysis was performed using STATA 14.

**Findings:** During the study period of 2006-2017, 1513 deaths among older persons were recorded, from an average population of 772,137 within the HDSS. A crude all-cause mortality rate of 6.55 per1000 (95% CI: 6.42-7.62) was seen during this time period. Across all gender, mortality from non-communicable diseases (NCDs) ranks highest among older persons with 59.6% (544/913) compared to 28.5% (260/913) from communicable disease. However, more female than men presented with NCDs, while more men than female presented with Communicable diseases. The all-cause mortality increased substantially (risk ratio 1.5(95% CI: 1.44-1.60): P<0.0001) due to a fourfold rise in deaths due to NCDs across age categories and sex (4.04 (95% CI: 3.98-5.34): P<0.0001). However, there is a significant difference in the risk of death across sex. The burden of older persons requiring chronic care has substantially increased compared with those requiring acute care (1.68 (1.38-2.02): p< 0.0001 vs 0.6 (0.53-1.53): p=0.0002).

**Conclusion:** There is a disproportionate increase in number of deaths resulting from NCDs in advanced age compared to communicable diseases in rural Uganda. This finding has implications for the delivery of health care for seniors, with integration of chronic care management in advanced age desirable to address the escalating burden.

### **S21.3 - Prevalence and Determinants/Associated factors of HTN among elderly (60 year and over) in rural Bangladesh**

#### 2. Individual abstracts

**Afsana Mim Khandaker**

Farhana Khanam Keya<sup>1</sup>, Rahvia Alam Sthity<sup>1</sup>, Kazi Munisul Islam<sup>1</sup>

<sup>1</sup> International Centre for Diarrhoeal Disease Research, Bangladesh

**Introduction:** Hypertension is a growing concern globally with 1.13 billion hypertensive people worldwide and a great obstacle to achieve good health and wellbeing of sustainable development goals 2030. Bangladesh is no exception to this scenario with a prevalence of 25.7% and 48% among  $\geq 35$  years according to JNC7 and AHC/ACC classifications. Even though there are a few publications on Hypertension but knowledge about determinants of Hypertension in elderly people who are equal or more than 60 years age-old is still insufficient.

**Methods:** This was a cross-sectional study, conducted during October-November 2013 in Char-Bhadrasan Upazilla of Faridpur district which is about 100 km north-east from Dhaka city. The information was collected by medical students of Faridpur Medical College. Convenient sampling was taken as they visited all households of selected areas of that Upazilla to identify participants among the household. The inclusion criteria were people aged 60 years and above and were the permanent residents of the study area. Data were collected by a pre-approved structured questionnaire and any duplication of data was excluded if found. The questionnaire included personal and demographic information and they also collected blood pressure (BP) and morbidity data.

**Results:** We found 36% of the elderly people were hypertensive, 4.3% were isolated systolic, 12.3% isolated diastolic and 19.4% were both systolic and diastolic hypertensive. Thirty-eight percentage of the male and 34% of the female was hypertensive and the trend is also similar in the different age group. The odds of having any type of hypertension among previous and current smokers were 1.9 after adjusting for gender and education. In multiple linear regression analysis, we found that any type of current and previous smoking, family income more than TK 20,000, any physical morbidity and education can raise systolic blood pressure (BP) from 1.8 to 5.9 mm of Hg and diastolic BP from 1.8 to 3.3 mm of Hg after adjusting sex, education, and age of the participants.

**Conclusion:** Hypertension affects more than one-third of our elderly rural population and was grossly ignored as major morbidity of non-communicable diseases worldwide. The campaign against smoking and any type of tobacco consumption in the rural area should be initiated and proper government policy should include detecting and treating unrecognized hypertension especially among the elderly .

## **S21.4 - Impact of COVID-19 public health restrictions on older people in Uganda: Multigenerational impact, older persons' resilience and Coping mechanisms**

2. Individual abstracts

**Isaac Ddumba**<sup>1,2</sup>

Clarissa Giebel<sup>3,4</sup>, Ivan Bwire<sup>2</sup>, Philomena Burger<sup>5</sup>, Isaac Ddumba<sup>1,2</sup>

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<sup>2</sup> African Research Centre for Ageing and Dementia, Uganda

<sup>3</sup> Department of Primary Care & Mental Health, University of Liverpool, UK

<sup>4</sup> NIHR ARC NWC, UK

<sup>5</sup> University of Chicago

**Introduction:** Older adults are amongst the most vulnerable group affected by COVID-19. Public health restrictions of social distancing and curfews are likely to significantly impact on the lives of older adults, with impacts likely to differ between high- and low- and middle-income countries (LMIC). With no evidence to date, the aim of this study is to explore the impact of COVID-19 related public health restrictions on the lives of older adults living in Uganda.

**Methods:** Thirty (30) older adults from central region in Uganda were interviewed over the phone and asked about their lives before and since COVID-19, and how public health restrictions have affected their lives. Semi-structured interviews were audio-recorded, transcribed and translated into English. Transcripts were thematically analysed and themes generated in discussion.

**Results:** 30 older adults participated over the phone. Five themes were identified: (1) Economic impacts; (2) Lack of access to basic necessities; (3) Impact on health care utilisation; (4) Social impacts; and (5) Violent reinforcement of public health restrictions. COVID-public health restrictions had severe impacts on older adults' lives, with many people having not enough food to eat due to lack of income, and being unable to pay their grandchildren's school fees. Steep rises in public transport fares and avoidance of transport also resulted in no access to healthcare services and difficulty in getting food, either from the market or from their farms.

**Conclusions:** With many older adults being unable to buy or produce enough food, lack of health care access, and no access to education for many grandchildren, public health restrictions have a severe impact on not only older adults, but the whole family in Uganda. Governmental strategies to contain the virus need to support people better to allow them to get basic necessities and live as normal a life as possible.

## **S21.5 - Promoting meaningful partnerships between researchers and the public to advance sustainable societal transformation**

### 2. Individual abstracts

Georgina Warner<sup>1</sup>

**Elin Lampa**<sup>1</sup>, Anna Sarkadi<sup>1</sup>

<sup>1</sup> Child Health and Parenting (CHAP), Department of Public Health and Caring Science, Uppsala University

### **Introduction**

In a time of grand societal challenges, patient and public involvement (PPI) in research can generate valuable knowledge and build strong synergies between sectors and actors to benefit sustainable development. PPI can lead to a richer understanding of the research topic, improve data quality and analysis, and increase trust in and dissemination of research findings. It can be a powerful tool to form partnerships for the sustainable development goals (SDG17). However, this all relies on PPI being conducted in a meaningful, respectful and inclusive way.

Great advancements have been made, including the development of guidance on how to conduct, report and evaluate involvement activities. However, evaluative data are often brief, narrative descriptions, which reflects the lack of robust tools specifically developed to assess PPI. Attempts to quantitatively assess the impact of PPI have been carried out, but have been critiqued for the lack of sufficient attention to the context and the way it is carried out. A substantive methodological development is required. This is particularly important for vulnerable groups within society, for whom PPI can be challenging but has the potential to play a transformative role in shaping research and achieving the sustainable development goal of reduced inequalities (SDG10).

The purpose of this study was to pilot and methodologically appraise innovative PPI evaluation tools and to describe a case study of refugee involvement in the development of mental health intervention research.

### **Methods**

'Refugee Advisors' were involved in the development of a randomized controlled trial protocol evaluating a brief group intervention for refugee children experiencing symptoms of post-traumatic stress in Sweden. During a research meeting, observation and questionnaire data were collected using the *Active Involvement of Users in Research Observation Schedule and Questionnaire*, followed by a focus group discussion.

### **Results**

The multi-method approach demonstrated good feasibility. There were clear examples of how the advisors influenced research development. The advisors described a perceived impact on the research, equality and acceptance, and knowledge gain. A sense of appreciation and empowerment was also interpreted. However, potential issues relating to the relevance of contributions and use of an interpreter were identified.

## **Conclusions**

The methodological approach piloted in this study offers a promising, rigorous way to evaluate PPI. The research tools require further refinement and validation. The vision is to drive up the quality of public involvement in research, to forge strong partnerships between researchers and the public, and ultimately to achieve sustainable development goals *together*.



**Session 22. (Part one) Transformative Forest and Landscape Restoration to achieve the SDGs – Research, theory and practice (SDG 15, 2)**

2021-06-15

10:45 - 12:15

Session 22. (Part one) Transformative Forest and Landscape Restoration to achieve the SDGs –  
Research, theory and practice (SDG 15, 2)

## **S22.1 - Transformative Forest and Landscape Restoration to achieve the SDGs – Research, theory and practice**

### 1. Sessions

**Aida Bargués Tobella**<sup>1,2</sup>

Rosa Goodman<sup>1</sup>, Lars Laestadius<sup>1</sup>, Leigh Ann Winowiecki<sup>2</sup>, Madelon Lohbeck<sup>2,3</sup>, Ulrik Ilstedt<sup>1</sup>, Anders Malmer<sup>1,4</sup>, Erik Karlun<sup>5</sup>, Gert Nyberg<sup>1</sup>, Madelene Ostwald<sup>6,7</sup>, Dennis Garrity<sup>2,8</sup>, Asmamaw Alemu<sup>9</sup>

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<sup>2</sup> World Agroforestry (ICRAF), Nairobi, Kenya

<sup>3</sup> Department of Environmental Sciences, Wageningen University and Research (WUR), Wageningen, The Netherlands

<sup>4</sup> Swedish Forest Agency (Skogsstyrelsen), Jönköping, Sweden

<sup>5</sup> Department of Soil and Environment, Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden

<sup>6</sup> Gothenburg Centre for Sustainable Development (GMV), University of Gothenburg, Gothenburg, Sweden

<sup>7</sup> Department of Technology Management and Economics, Chalmers University of Technology, Gothenburg, Sweden

<sup>8</sup> World Resources Institute (WRI), Washington DC, USA

<sup>9</sup> University of Gondar, Gondar, Ethiopia

### **Session description**

Healthy ecosystems and the services they provide are a prerequisite to achieving the SDGs. Today, land degradation negatively impacts the livelihoods and well-being of millions of people globally, threatening sustainable development. Forest and Landscape Restoration (FLR) – ‘the process that aims to regain ecological functionality and enhance human well-being in deforested or degraded landscapes’ – has emerged as a key element to meet these challenges and contribute to realizing the SDGs. An estimated two billion hectares of degraded land – an area larger than South America – offer opportunities for FLR, and the global restoration movement is growing bigger. Under the FLR regime, several countries have committed to restore millions of hectares of degraded land as part of the Bonn Challenge and the New York Declaration on Forests, and the UN General Assembly declared 2021-2030 the UN Decade on Ecosystem Restoration, which aims to massively scale up the restoration of degraded ecosystems. We propose two sessions to cover this theme. Session 22 (part I) will focus on the theory and some of the research behind FLR, and Session 30 (part II) will highlight some ongoing Swedish development cooperation and capacity development programs around FLR.

We will discuss the potential FLR pathways to advancing sustainable transformation and achieving the SDGs based on research and experiences from across the global tropics. We will also discuss fundamental questions such as ‘What functions to restore and for whom?’ or ‘How can we ensure truly transformative FLR with outcomes that are sustainable in the long term?’.

The sessions will be co-organized by SLU Global, ICRAF, Focali and SIANI

## Session contributors

### Part I (session 22):

- **Lars Laestadius** (SLU, Sweden): *Forest and Landscape Restoration (FLR) – Requirements and opportunities for a globally meaningful response to Agenda 2030.*
- **Leigh A. Winowiecki** (ICRAF, Kenya): *The power of data-driven networks for effective implementation and monitoring of land restoration*
- **Madelon Lohbeck** (Wageningen University, The Netherlands): *Natural regeneration as a nature-based solution to restoring degraded lands*
- **Aida BARGUES TOBELLA** (SLU, Sweden): *Transformative trees - Impacts of tree-based restoration on water security*
- **Asmamaw Alemu** (University of Gondar, Ethiopia): *Market Driven Afforestation – Charcoal Value Chain Drives Rapid Afforestation*
- **Erik Karlton** (SLU, Sweden): *Commercial forestry for sustainable development - Catalyzing the forest sector development in Ethiopia*
- **Dennis Garrity** (ICRAF & WRI, Kenya): *Restoration that puts people first: It's the only way to succeed*

### Part II (session 30):

- **Anders Malmer** (Swedish Forest Agency, Sweden.): *Locally controlled forest restoration – a governance and market-oriented approach to resilient landscapes*
- **Rosa Goodman** (SLU, Sweden): *The 'Good Wood' value chain model – Transforming the tropical forestry industry to make restorative forest management possible*
- **Ulrik Ilstedt** (SLU, Sweden): *The Sow-a-Seed project: Learning from 22 years of rainforest restoration on Borneo*
- **Gert Nyberg** (SLU, Sweden): *REFOREST Africa – a regional research school in forest sciences*
- **Madelene Ostwald** (University of Gothenburg, Sweden): *Multifunctional land use and food security – examples from AgriFoSe2030*

## How the sessions will be run

Part I (session 22) will start with an icebreaker in Mentimeter. After the icebreaker, there will be 6 min presentations by the seven speakers, with two rounds of questions from the audience. Session II will start with a recap of session I and another participatory exercise in Mentimeter followed by 6 min presentations by the five speakers. After this, there will be another round of Q&A. The session will end with a concluding discussion with the audience.

**Session 23. Development Thinking in Flux — Continuity and/or Change (SDG 17)**

2021-06-15

10:45 - 12:15

Session 23. Development Thinking in Flux — Continuity and/or Change (SDG 17)

## S23.1 - Development Thinking in Flux — Continuity and/or Change

### 1. Sessions

#### **Fredrik Söderbaum**<sup>1</sup>

Maria Eriksson-Baaz<sup>2</sup>, Anna-Karin Hurtig<sup>3</sup>, Magnus Jirstrom<sup>4</sup>, Henning Melber<sup>5</sup>

<sup>1</sup> Professor of peace and development research, School of Global Studies, University of Gothenburg, and Chair of the Swedish Development Research Network (SweDev)

<sup>2</sup> Professor of Political Science, Department of Government, Uppsala University.

<sup>3</sup> Professor of Public Health, Department of Epidemiology and Global Health, Umeå University

<sup>4</sup> Professor of Human Geography, Lund University, and member of the steering committee of the Swedish Development Research Network (SweDev).

<sup>5</sup> President of the European Association of Development Research Institutes (EADI), member of the steering committee of the Swedish Development Research Network (SweDev), former research director of the Nordic Africa Institute, and former director of the Dag Hammarskjöld Foundation.

#### **Description**

Development theories and approaches – and their practical applications – are in a state of flux. This Roundtable is inspired by three fundamental changes in contemporary development thinking. First, development research emerged after the Second World War with a particular focus on what was then the Third World. The changing boundaries between rich and poor countries and the end of Third Worldism have triggered a vivid debate about whether “development” remains restricted to poor countries or is a more universal concern for all societies.

Second, the Sustainable Developments Goals (SDGs) have expanded beyond classical development issues — such as poverty reduction, health and education — to include a range of issues related to climate change and environmental sustainability as well as “global” development more broadly. A core debate centres on what is left of “development” with an ever-expanding development agenda in an increasingly intertwined world.

Third, a specific debate has emerged in the Swedish context about “development research” as a field of study. Some continue to approach “development research” as a distinct interdisciplinary, social science discipline, whereas others perceive it more broadly as “any kind of research of relevance for developing countries” — i.e. any discipline, methodology and research tradition focusing on poor countries.

Following on from these changes, the roundtable centres around questions such as:

1. What does the end of the Third World mean for thinking about “development”?
2. What is the meaning of development in an age where the orthodox growth paradigm is often challenged?
3. What does the expansion of the development agenda through the SDGs mean for our understanding of development and development research?
4. What are the tensions between classical and interdisciplinary notions of “development research” and more open-ended and/or disciplinary-centred approaches?

## Contributors

The Roundtable is organized by the Swedish Development Research Network (SweDev) and includes some of the most experienced scholars shaping debates and research about development thinking and policy in Sweden (and to some extent also in Europe).

*Convenor, chair and moderator:*

*Fredrik Söderbaum*, Professor of peace and development research, School of Global Studies, University of Gothenburg, and Chair of the Swedish Development Research Network (SweDev)

*Panellists:*

*Maria Eriksson-Baaz*, Professor of Political Science, Department of Government, Uppsala University. An authority and widely published on development research both internationally and in Swedish.

*Anna-Karin Hurtig*, Professor of Public Health, Department of Epidemiology and Global Health, Umeå University.

*Magnus Jirström*, Professor of Human Geography, Lund University, and member of the steering committee of the Swedish Development Research Network (SweDev).

*Henning Melber*, President of the European Association of Development Research Institutes (EADI), member of the steering committee of the Swedish Development Research Network (SweDev), former research director of the Nordic Africa Institute, and former director of the Dag Hammarskjöld Foundation.

## Format

The Roundtable is designed in order to promote debate among the four panellists under the leadership of the moderator. The audience will also be involved to a significant extent.

1. Introduction by the chair and moderator (10 minutes) — Söderbaum introduces the RT (including some results from a recent survey of the Swedish development research community conducted by SweDev).
2. Short presentations by the four panellists — dealing with the core questions raised above (c 5-7 min per person) (30 minutes)
3. Brief follow-up questions by the moderator (10 minutes)
4. Q & A (30 minutes) — Considerable time is devoted to questions from the audience, and efforts will be made to enhance an exciting debate.

5. Final remarks from the four panellists (2 min p/p) (10 minutes)

**Session 25. Responding to Covid-19: opportunities for transformation? (SDG 3)**

2021-06-15

10:45 - 12:15

Session 25. Responding to Covid-19: opportunities for transformation? (SDG 3)



## **S25.1 - Governments Policy Responses to COVID-19 and the Civil Society in Africa: Lessons from Kenya, Zambia and South Africa**

2. Individual abstracts

**Jackson Ndegwa**<sup>1</sup>

Sheelah Ambani<sup>2</sup>

<sup>1</sup> Kenya AIDS NGOs Consortium (KANCO).

<sup>2</sup> Laikipia University, Kenya.

### **Introduction**

The COVID-19 pandemic has been without a doubt the most pressing issue throughout much of 2020. Its emergence served to worsen already fragile economic and social conditions in many African countries. By July 2020, over one million COVID-19 cases had been confirmed in Africa. Responses to this pandemic has been through legislations, policy guidelines, directives and governments commitments touching on public health, fiscal policies, social (behavioral) status, among others.

African Civil Society in its watch dog role have an important role to play on accountability for an effective COVID-19 response. This research survey, conducted through KANCO and Laikipia University highlights how health Civil Society Organizations (CSOs) are responding to the COVID-19 crisis through monitoring, accountability and advocacy on Kenya, South Africa and Zambia Governments' COVID-19 policy responses.

### **Methods**

The study created an online survey to understand how African health CSOs are responding to the COVID-19 pandemic by influencing governments' policy responses in Kenya, Zambia and South Africa. 1,342 CSOs completed the survey between June 28 and August 13 2020. The survey was complimented by secondary sources, especially reports developed by donors, bilateral and multilateral organizations on African CSOs response to COVID-19.

### **Results.**

From the survey, 80% of the health CSOs respondents are keeping track, influencing policies, directives and legislations passed by Kenya, Zambia and South Africa governments, to address COVID-19 pandemic. COVID-19 prevention, testing and treatment and fiscal policies improved in the case of South Africa, due to advocacy and accountability work from local CSOs.

Though weaker health systems are notable barriers to an effective response, promoting accountability and speaking out against corruption in all aspects of governance should be even greater during the COVID-19 pandemic, the case of Kenya.

In Zambia, the CSOs developed shadow voluntary national report on COVID-19 government's policy response, which can be emulated by CSOs in other countries. Developing *Civil Society Organizations Covid-19 Response Plan*, the case of Kenya greatly enhanced CSOs results, while

guiding their advocacy responses. However, CSOs inclusion in the national policy processes on covid-19 in the three countries was noted to be weak and fragmented.

### **Conclusions**

There is need to empower CSOs and the media to monitor and promote accountability on policies implementation and use of public funds during this COVID-19 pandemic in Africa. Developing online platforms with useful resources offering tools, resources and knowledge will support Civil Society's advocacy and accountability on African governments' policy response to COVID-19 pandemic.

## **S25.2 - HOW COVID-19 IS INSPIRING SUSTAINABLE TRANSFORMATION IN INDONESIAN RURAL AREAS?**

2. Individual abstracts

**Hindina Maulida**<sup>1</sup>

R Willya Achmad W<sup>2</sup>

<sup>1</sup> Universitas Tidar, Indonesia

<sup>2</sup> Social Office Bandung, Indonesia

Coronavirus has created global fear, anxiety, uncertainty and dilemma. People must face an enormous challenge to adapt to these situations. However, some literature has highlighted that there is always a tremendous opportunity, along with pandemic. Indonesian people who are living in a rural area response the Covid-19 by initiating '*Kampung Tangguh Covid*'. '*Kampung Tangguh Covid*' or Covid resilient village is initiated to combat the spreading of coronavirus in the village. It is a community solidarity spirit to handle the harmful effects of coronavirus in the grassroots levels such as hunger, food supply and security, health facilities and village security. This study examines how people initiate and run Covid resilient village (*Kampung Tangguh Covid*)? how this program help to solve the multi-sector effect of coronavirus? And how this community spirit becomes an opportunity to create bottom-up participation of SDGs achievement in Indonesia? The study uses a qualitative design with a case study in rural areas East Java and Central Java in Indonesia. It utilizes document analysis and semi-structured interviews with relevant actors and decision-maker. The result of the study will contribute to body knowledge of community spirit on sustainable transformation during and after Covid-19 Pandemic. It also will offer an elaboration on how Covid-19 create an indirect awareness and enthusiasm of people towards SDGs achievements in social, health and economy aspect.

### **S25.3 - COMMUNITY – BASED ACTION ‘JOGO TONGGO’ IN TIMES OF COVID-19 PANDEMIC**

2. Individual abstracts

**Rd Siti Sofro Sidiq**<sup>1</sup>

R. Yogie Prawira W<sup>2</sup>

<sup>1</sup> Universitas Riau, Indonesia

<sup>2</sup> Universitas Tidar, Indonesia

Covid-19 has affected all of us. Tackling this global pandemic, it needs collaborative action to improve the lives of all people. Indonesia, as one of the countries with significant numbers of covid victims, has decided some policy-related such as empowering community action. One of community action based implemented is ‘*Jogo Tonggo*’ or protect your neighbour. This paper investigates what the nature of Jogo Tonggo is? How Jogo Tonggo contribute to no one left behind during pandemic? and how the sustainability of this program in supporting SDGs goals achievement in 2030. A qualitative study with a case study in Central Java is employed. Central Java is a province with the highest number of coronavirus victim in Indonesia. The data gathered with the literature review, observation, and in-depth interview with relevant informants. The result can illuminate 1)the contribution of community-based action in response to a pandemic, and 2) The relation of community-based action on the implementation of SDGs at the local level. In short, Covid-19 pandemic has caused both negative and positive impacts on SDGs Goals.

## **S25.4 - RCE Achievements and Collaborative Initiatives in Response to COVID-19: role of education for sustainable development to achieve SDGs**

2. Individual abstracts

**Carlos Pascual**<sup>1,2</sup>

<sup>1</sup> Future University, Khartoum, Republic of the Sudan

<sup>2</sup> RCE - Ilocos, Mariano Marcos State University, Batac City, Philippines

In 2003, in response to the UN resolution on the UNDESD, the United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS) launched the Education for Sustainable Development (ESD) project. The ESD project designs and implements research and development activities through two flagship initiatives: a global multi-stakeholder global network of Regional Centres of Expertise on ESD (RCEs) and a network of higher education institutions called the Promotion of Sustainability in Postgraduate Education and Research Network.

RCEs aspire to translate global objectives into the context of the local communities in which they operate. Upon the completion of the DESD in 2014, RCEs are committed to further generating, accelerating and mainstreaming ESD by implementing the Global Action Programme on ESD, and contributing to the realization of the Sustainable Development Goals (SDGs).

The RCE network brings together multi-sectoral and interdisciplinary members who might not usually work together. As such, they are uniquely placed to help create solutions to sustainability challenges through dialogue, education and learning. They are highly influential policy advocates, able to test policies individually and work collectively to bring policy to scale and advice on future actions.

Through these efforts, RCEs help prepare local leaders of tomorrow with the tools and information they need to make smart and sustainable choices for the future. RCE efforts encourage innovation and new approaches to sustainable development. They translate existing knowledge into concrete actions and empower individuals to make sustainable choices for themselves and their communities.

The success each RCE achieves on the local level is brought to scale through the global RCE Network worldwide. Local knowledge, expertise, and best practices are shared globally through the network and can be adapted and applied successfully in other regions. RCEs also play a central role in the transfer of global technologies, knowledge, and experiences at the local level through their programmes and activities.

The pandemic presents both an enormous challenge and tremendous opportunities for reaching the 2030 Agenda and SDGs. The SDGs are a roadmap for humanity. They encompass almost every aspect of human and planetary wellbeing and, if met, will provide a stable and prosperous life for every person and ensure the health of the planet. This year they have received a dangerous shock, one that will be far reaching for years to come. But the pandemic also shows the wisdom of what is already intrinsic in the SDGs; the challenges we face cannot be dealt with in isolation. Socioeconomic assessments, based on findings from more than 70 countries and five regional reports, show that while most developing countries are in the early stages of the pandemic, they are already dealing with its negative effects.

To date there are about 175 RCEs worldwide, where RCE-Ilocos Philippines since 2009 is actively collaborating to promote ESD in Asia-Pacific and worldwide. The RCE-Khartoum is finding its way to be an active member in the future, among other RCEs in Asia-Pacific, Africa, Americas, Europe and elsewhere.

The coronavirus pandemic has presented a series of challenges to the global community. However, despite the various obstacles and hurdles, peoples around the world are using this as an opportunity to come together in solidarity and turn the crisis into a catalyst to achieve the UN Sustainable Development Goals. This presentation will show some insights on how the pandemic will likely impact the SDGs and its implications in all walks of life, the academe, researchers, students, policy makers and other stakeholders for volunteer-led organizations around the world, like the RCEs; where selected achievements and collaborative initiatives of best practices will be presented to the audience, worthy of emulation.

**Session 36. Markets and financing for sustainable development (SDG 9, 8)**

2021-06-15

10:45 - 11:45

Session 36. Markets and financing for sustainable development (SDG 9, 8)

### **S36.1 - Determinants of access to agricultural credit among rice and maize smallholder farmers in the eastern and western provinces of Rwanda**

1. Sessions

**Nathan Kanuma Taremwa**<sup>1</sup>

Ibrahim Macharia<sup>1</sup>, Eric Bett<sup>1</sup>

<sup>1</sup> Kenyatta University (KU), Main Campus- Nairobi, Kenya (School of Agriculture and Enterprise Development)

#### **Abstract**

**Introduction:** Access to agricultural credit is an essential aspect of inclusive rural transformation for the reason that it provides access to, and use of, capital to underserved rural households.

**Purpose:** The purpose of this study is to assess the determinants of access to agricultural credit among rice and maize smallholder farmers in the Eastern and Western Provinces of Rwanda.

**Design/methodology/approach:** A cross sectional survey design was adopted, stratified sampling and simple random sampling techniques were used to sample districts, sectors and cells per sector. Households were sampled conveniently, and the farmers were purposively sampled. Structured interviews were used to collect data which was analyzed in Statistical Package for Social Sciences version 25. A sample size of 422 smallholder farmers was taken and also analyzed using the logit method. Logit was preferred following its flexibility to analyse dichotomous outcome variables as well as being capable of generating meaningful interpretations.

**Findings:** Access to agricultural credit among the maize and rice farmers is determined by saving of money in commercial banks (AOR = 2.389), owning a size of land that is between 0 - 0.1 ha (AOR = 0.127), and knowledge of the repayment terms of agricultural loans (AOR = 0.203), having privately owned finance institutions in the area (AOR = 0.287), offer of both long and short-term loans (AOR = 0.290, CI = 0.112 - 0.750, P = 0.011), interest rate between 11-15% (AOR = 0.178), the process for obtaining agricultural credit not being too long (AOR = 2.026).

**Implications:** Access to agricultural credit among maize and rice smallholder farmers in the Eastern and Western provinces of Rwanda is determined by both individual and institutional characteristics, with institutional characteristics being more important.

**Originality/value:** This study is among the very few that have been conducted to assess the determinants of credit access among rice and maize smallholder farmers, more so covering two of the five provinces of Rwanda.

**Key words:** Access to Credit, Agricultural Productivity, Smallholder Farmers, Rwanda.



## **S36.2 - Creating market linkage to support livelihoods of smallholder farmers**

### 2. Individual abstracts

**Thi Hanh Vu<sup>1</sup>**

Van Thach Nguyen<sup>1</sup>, Nguyen La<sup>1</sup>

<sup>1</sup> World Agroforestry (ICRAF), Viet Nam Country Office, 13th floor HCMCC Tower, 249 A Thuy Khue Street, Thuy Khue Ward, Tay Ho District, Ha Noi, Viet Nam

Family income of smallholder farmers in Northwest Vietnam mainly depends on the agricultural products sold locally through small traders. Household economy can be improved by accessing bigger markets and meeting requirements for quantity and quality of products. A research on market linkage for smallholders was conducted with the aim to identify factors that (1) affect the ability of farmers to develop linkages to private sector actors (company, enterprise and supermarket) and (2) provide support for farmer cooperative to connect with appropriate markets.

The results showed that individual smallholders are limited in their ability to meet the demands of the market such as large quantity, uniform quality, trust from businesses and private companies. In order to overcome this problem, it is crucial that smallholders can form a group or cooperative in which they can work together to generate a stable and uniform production system in terms of product quality and quantity to meet a certain standard. To achieve this mode of operation, 30 farmers in Huoi Tan village and 34 households in Mon village, both in Son La province, have formed farmer groups and they are now trading with six companies, supermarkets and retail stores. The farmer groups have directly exchanged information on prices, quantity requests from private businesses, then step-by-step they are working to meet the requirements from the markets. In the future, we will continue to carry out capacity training on production organization, management, business skills and creating a reliable relationship to partners for the farmer group to maintain and expand the production system.

### **S36.3 - Agroforestry for livelihoods and markets – scaling up from field trials to landscapes level**

#### 2. Individual abstracts

**Nguyen La**<sup>1</sup>

Van Thach Nguyen<sup>1</sup>, Duy Phuong Nguyen<sup>2</sup>

<sup>1</sup> World Agroforestry (ICRAF), Viet Nam Country Office, 13th floor HCMCC Tower, 249 A Thuy Khue Street, Thuy Khue Ward, Tay Ho District, Ha Noi, Viet Nam

<sup>2</sup> Soils and Fertilizer Research Institute, Tu Liem, Hanoi, Viet Nam

Agroforestry is considered as a solution for improving livelihoods of smallholder farmers and reducing land degradation. However, investment costs are high and therefore the uptake of agroforestry practices are often limited calling for policy support to facilitate and promote wider application.

With the aim to bring agroforestry research results from field trials to application at large scale a research for development project was initiated in 2011 (and will end in 2021) in the mountainous region of Northwest Vietnam. The research combined different activities. It started by understanding suitable agroforestry options and capacity building together with developing farmer's and local extension workers co-operation. Thereafter the focus was on reducing investment costs by establishing farmer managed fruit tree and forage grass nurseries, and introducing systems components providing earlier income from agroforestry practices than the fruit trees. Replicated on-farm field trials were complemented by scaling up through farmer demonstration trials and agroforestry landscape development with local communities.

The results show that through forming farmer groups, they have been able to produce seedlings to a cheaper price, and reduce the costs up to 50% compared to the market. The earlier incomes from short-term crops, such as forage grass and annual food crops, have made that farmers reached the break-even point of agroforestry systems after years three. The return of investment (ROI) of agroforestry landscapes were reached up to 60% five years after the establishment.

We are continuing to evaluate the performance of the agroforestry landscapes, create linkages to market for agroforestry products and advise local and national government in developing programs and policies to support scaling up of agroforestry.

**Session 26. Novel sustainable approaches for mitigation of environmental challenges (SDG 3, 6)**

2021-06-15

14:15 - 15:15

Session 26. Novel sustainable approaches for mitigation of environmental challenges (SDG 3, 6)

## **S26.1 - Occurrence and removal of micropollutants in an on-site wastewater treatment system in Durban, South Africa**

### 2. Individual abstracts

Jana Späth<sup>1</sup>

Richard H. Lindberg<sup>1</sup>, Ovokeroye A. Abafe<sup>2</sup>, Chris Buckley<sup>3</sup>, Stina Jansson<sup>1</sup>, **Jerker Fick**<sup>1</sup>

<sup>1</sup> Department of Chemistry, Umeå University, SE-901 87 Umeå, Sweden

<sup>2</sup> Residue Laboratory, Onderstepoort Veterinary Institute, Onderstepoort, South Africa

<sup>3</sup> Pollution Research Group, Department of Chemical Engineering, University of KwaZulu-Natal, South Africa

### **Introduction**

Micropollutants, such as pharmaceuticals and personal care products, have been increasingly found in surface and ground water worldwide and several adverse effects on aquatic organisms in receiving waters have been reported. The main source of micropollutants ending up in the environment is through wastewater, either non- or inefficiently treated. Despite the high consumption of antibiotics and antiretroviral drugs in South Africa, there is limited data available on the occurrence of micropollutants in South African wastewater. In this study, we evaluated the occurrence and removal of 67 micropollutants in an on-site wastewater treatment system (OWTS) in the eThekweni municipality, Durban, South Africa. The objectives were to determine which micropollutants were present in the wastewater, how efficiently they were removed by the current treatment system, and explore the potential for enhancing the removal efficiency by using biochar.

### **Methods**

Influent and effluent samples were collected over three consecutive days at two time points (morning and evening) in an OWTS designed to treat domestic wastewater from about 80 households, with an average daily flow 14 m<sup>3</sup>. The OWTS consists of a settler, an anaerobic baffled reactor, and both a vertical and horizontal flow constructed wetland. Influent samples were taken directly at the inflow, and the effluent samples were taken directly after the anaerobic baffled reactor. The samples were analyzed using on-line solid phase extraction liquid chromatography coupled to tandem mass spectrometry method. The investigated compounds included several antibiotics, antiretrovirals, analgesics/anti-inflammatory drugs, hormonal contraceptives, and herbicides/pesticides. Removal of micropollutants from the wastewater through adsorption to biochar was evaluated in lab-scale experiments.

### **Results**

24 micropollutants were found in the wastewater samples, with the highest concentrations observed for analgesics/anti-inflammatory drugs, antiretrovirals, and antibiotics. One antibiotic, ciprofloxacin, exceeded its predicted no effect concentration (PNEC) in all influent and effluent samples. Removal of target micropollutants by the OWTS was determined by comparing their respective influent and effluent levels. Only five substances displayed a removal efficiency higher than 50%. Most of the micropollutants were not removed, or even showed negative removal. Biochars produced from four different feedstocks were assessed with regard to removal capacity, and they were all able to

efficiently remove a majority of the substances, with an average removal efficiency of 62%.

### **Conclusions**

A majority of the micropollutants were not removed by the OWTS. An additional treatment step with biochar adsorbents is likely to improve the OWTS treatment substantially.

## S26.2 - Wastewater reclamation and biomass generation by Nordic microalgae

### 2. Individual abstracts

**Christiane Funk**<sup>1</sup>

<sup>1</sup> Umeå University

By 2050 the human population is forecast to expand from 7.5 to 9.6 billion people. We will require 70% more food, 50% more fuel, and 50% more water. At the same time we will need to reduce CO<sub>2</sub> emissions by over 80%. Photosynthetic organisms use solar energy to incorporate atmospheric CO<sub>2</sub> into organic molecules. They therefore not only mitigate climate change by counteracting increased levels of atmospheric carbon dioxide, they also produce biomass, which provides food and feed, and even can be used in technical processes to gain valuable bio-products and biofuels. Microalgae (i.e. the prokaryotic cyanobacteria and the eukaryotic microalgae) are without doubt the most productive photosynthetic organisms on Earth. However, while most algal parks are located in warm and sunny countries, our consortium "MicroBioRefine" was able to show that microalgae successfully can be used for biomass generation even in Nordic climate. Instead of using expensive fertilized media we successfully collected microalgal strains able to grow in waste streams, the organisms receive their energy from organic carbon sources found in the sewage and/or from sun light (Ferro et al., 2018b, Gentili 2014). Our Nordic algae clean wastewater from nitrogen and phosphorus as well as from contaminants highly efficiently (Ferro et al., 2018a, Gentili & Fick, 2017, Gojkovic et al., 2019). Hence, the use of microorganisms grown on wastewater will recycle nutrients and produce biomass that can be used for biofuel, biogas, biofertilizers or new higher-added value bio-based materials and composites, leading to an environmentally sustainable society. Here we discuss a sustainable chain from process-waste to innovative use and development of new sustainable molecules that will be turned into bio-based products.

### References

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Gojkovic, Z., Lindberg, R.H., Tysklind, M., Funk, C. (2019) *Ecotoxicology and Environmental Safety* 190, 644-656.

### S26.3 - Chemoreception: Decoding the sense of smell in Tsetse flies

#### 2. Individual abstracts

**Steven Nyanjom**<sup>1</sup>

Cyrus Tare<sup>1</sup>, Albert Moindi<sup>1</sup>, Peter Juma<sup>1</sup>, Fred Wamunyokoli<sup>1</sup>, George Obiero<sup>2</sup>

<sup>1</sup> 1. Biochemistry Department, Jomo Kenyatta University of Agriculture and Technology, Kenya

<sup>2</sup> 2. Biochemistry Department, Technical University of Kenya

**Introduction:** Tsetse flies (*Glossina*) are the main vectors of African trypanosomiasis, a neglected tropical disease that is transmitted by protozoan trypanosomes to humans and animals in sub-Saharan African countries. Olfaction mediated by olfactory proteins, plays a key role in tsetse behaviour through the identification of hosts, mates and larval position sites.

**Methods:** To better understand chemoreception in *Glossina*, we used real-time quantitative PCR (qPCR) to examine the expression profile of: OBP genes in *G. brevipalpis* larvae, pupae and teneral and odorant receptors (ORs) genes in female and male *Glossina morsitans morsitans* antennae and legs.

**Results:** GbrOBP2 was highly expressed in both larval and pupal stages, whereas GbrOBP7 was expressed in the pupal stage. GbrOBP8, GbrOBP13, and GbrOBP6 showed high expression in adult antennae. Expression of OBPs in the immature stages suggested OBP involvement in nonolfactory chemical sensation, whereas that in adult antennae was attributed to olfaction. The OR genes were more highly expressed in antennae than the legs with GmmOR33 and GmmOR45 transcript levels being high in the female and male antennae, respectively, whereas GmmOR26 and GmmOR34 levels were higher in female and male *G. m. morsitans* legs, respectively. The expression of OBPs in *G. brevipalpis* larval and pupal stages may be implicated to have a role in the development of the fly. The *G. m. morsitans* OR genes were highly expressed in antennae than the legs, confirming that the antenna is the main olfactory organ. The expression levels of OR genes in female and male *G. m. morsitans* could be conserved in function with the antenna being the main olfactory organ.

**Conclusion:** These findings may pinpoint probable roles of olfactory proteins in tsetse flies and could be used as a basis for development of novel and innovative ways for controlling tsetse flies based on olfactory-mediated behaviours. This study will in the long run have a positive influence on the third United Nations Sustainable Development Goal that emphasizes on the good health and well-being, in this case through monitoring and control of tsetse flies populations that vector African trypanosomiasis in both humans and animals.

**Keywords:** Tsetse fly, Odorant Binding Proteins, Odorant receptors

## **S26.4 - Implementation challenges of SDG 7 related to particle emissions from household cooking with solid fuels in LMIC's**

2. Individual abstracts

**Natxo García-López**<sup>1</sup>

Robert Lindgren<sup>1</sup>, Christoffer Boman<sup>1</sup>

<sup>1</sup> Thermochemical Energy Conversion Laboratory, Department of Applied Physics and Electronics, Umeå University, SE-90187, Umeå, Sweden

### **Background**

Around 40 percent of the global population relies on solid fuels for their everyday cooking, most often using simple and inefficient cookstoves that generates high levels of air pollution. Health effects associated with exposure to indoor air pollution is one of the major global burden of disease, mainly attributed to women and children. Extensive efforts are in progress to introduce cleaner cook stoves and upgraded fuels in order to reduce the emissions. However, the stoves are preferably tested and certified under controlled laboratory conditions where the influence of fuel quality and user behavior is faintly considered. Beside the general measure of particle mass emissions, the detailed particle properties are highly dependent on cookstove technology, fuel and user behavior. We have conducted extensive laboratory studies on cookstove emissions, comparing different technologies and fuels. One finding is that, despite the controlled conditions during lab experiments, the variations in particle mass emissions among similar tests are considerable. In real cooking conditions these variations are expected to be even larger. One challenge with field measurements today is that there are several uncontrolled parameters in the households, e.g. ventilation rate, fuel properties and burn-rate. We have therefore developed a new method to perform relevant field-based emission measurements under real-life cooking conditions that only needs indoor air CO<sub>2</sub> and filter-based particle measurements, combined with some theoretical assumptions.

### **Methods**

In our lab-studies, we have compared the combustion performance and emissions for different biomass cookstoves that cover the entire and broad spectrum of available technologies. Additionally, we have also used different fuels that are of relevance for sub-Saharan Africa in terms of availability and sustainability, i.e. pellets produced with agricultural residues or with wood produced in agroforestry settings by local farmers. The field method was evaluated through a standardized testing procedure (i.e. water boiling test) where the emissions were measured through a standard lab-procedure as a reference and in parallel, with our new method, in a chamber simulating a household kitchen.

### **Results and Discussion**

The study showed that the results from our new field-based method were in good agreement with the standard laboratory method applied. Through this approach, more reliable emission factors can be determined in field settings. Thus, by generating this kind of real-life data about cookstove performance, uncertainties related to for example user behavior and local variations in fuel quality can be considered in the assessment of different clean cookstove implementation strategies.



**Session 27. Fulfilling young people's sexual and reproductive rights: a  
cornerstone for development (SDG 3, 5)**

2021-06-15

14:15 - 15:45

Session 27. Fulfilling young people's sexual and reproductive rights: a cornerstone for development  
(SDG 3, 5)

## **S27.1 - Fulfilling young people's sexual and reproductive rights: a cornerstone for development**

### 1. Sessions

**Isabel Goicolea**<sup>1</sup>

Jesper Sundewall<sup>2</sup>, Kerstin Edin<sup>1</sup>, Joseph Zulu<sup>3</sup>, Mazen Baroudi<sup>1</sup>

<sup>1</sup> Umeå University

<sup>2</sup> University of Lund

<sup>3</sup> University of Zambia

### **Session description**

This session builds on cases from diverse settings and focusing on four different aspects of the broad field of sexual and reproductive rights of young people. Taking as a point of departure that the achievement of the highest standard of sexual and reproductive rights is a fundamental right of all individuals, we make the argument of why such rights are especially relevant for young people at an individual level, and for the development of their communities and of society as a whole. Articulating sexual and reproductive rights of young people within the broader context of community based health systems, universal health coverage and the sustainable development goals we bring experiences from Zambia, South Africa and Sweden to start a discussion about the relevance and challenges to ensure that all young people can enjoy their sexual and reproductive rights.

### **Session contributors**

Moderator: Isabel Goicolea, Professor, Umeå University, with ample experience in advocacy, work and research on sexual and reproductive health and rights in different countries.

Panelists:

**Dr Jesper Sundewall, Lund University.** Will contribute presenting "Sexual and reproductive health and rights: an essential element of Universal Health Coverage". The world's countries have committed to achieving universal health coverage and universal access to sexual and reproductive health care services by 2030. This presentation will focus on how these two aspirational goals are intimately linked and dependent on each other and why achieving them is critical for reaching the Sustainable Development Goals.

**Dr. Kerstin Edin,** Associate Professor, Umeå University. Will contribute presenting "Perspectives on intimate relationships among young people in rural South Africa: the logic of risk". Drawing upon interviews with young people in rural South Africa, the concept of risk taking within heterosexual sexual relationships is unpacked and tensions are analyzed with the aim to improve the framing of policies to support young people's sexual and reproductive rights.

**Dr Joseph M Zulu, Senior Lecturer, University of Zambia.** Will contribute presenting

“Community based participatory research realist evaluation protocol on how the integration of comprehensive sexuality education (CSE) in schools shapes sexuality decisions among adolescents in Zambia.” The integration process of CSE in Zambia and other countries has been complex. This presentation focuses on how this participatory research approach can facilitate development of appropriate integration processes for CSE.

**Mazen Baroudi**, MD, PhD candidate, Umeå University. Will contribute presenting “Young migrants' access to SRHR”. Equal access to healthcare is a prerequisite to insure UHC. Young immigrants are facing difficulties in accessing SRH services in Sweden. This can lead to worse health outcomes among young immigrants and might hamper the health improvement in Sweden since young immigrants comprise one-fifth of all young people in Sweden.

### **Session format**

The session will take the format of a panel discussion. The moderator (Prof Isabel Goicolea) will introduce the panel and panellists (10 min) and then each panellist will present for 15 minutes each. After the four presentations, there will be 20 minutes for the audience to pose questions and discuss with the panellists.

**Session 28. (Part two) Engendering rural transformation for sustainable development (SDG 1, 2)**

2021-06-15

14:15 - 15:45

Session 28. (Part two) Engendering rural transformation for sustainable development (SDG 1, 2)

## **S28.1 - Engendering rural transformation for sustainable development**

### 1. Sessions

LINLEY CHIWONA-KARLTUN<sup>1</sup>

KAROLIN ANDERSSON<sup>1</sup>, LETTICE RUTASHOBYA<sup>2</sup>, LEMAYON MELYOKI<sup>2</sup>, ALFRED BIZOZA<sup>3</sup>, ANNE KUBAI<sup>4</sup>, CAROLINE WAMALA LARSSON<sup>5</sup>, MESIA ILLOMO<sup>2</sup>, MOHAMED SEMKUNDE<sup>2</sup>, MEREZIA WILSON<sup>2</sup>, NATHAN KANUMA TAREMWA, **EULARIE MUTAMULIZA**<sup>3</sup>

<sup>1</sup> SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES

<sup>2</sup> UNIVERSITY OF DAR ES SALAAM

<sup>3</sup> UNIVERSITY OF RWANDA

<sup>4</sup> SÖDERTORN UNIVERSITY

<sup>5</sup> STOCKHOLM UNIVERSITY

### **Purpose and Topics Covered in bold**

In the face of affirmation and consensus that agricultural growth that benefits both women and men is necessary if broad-based and inclusive economic growth and poverty reduction is to be meaningful, low-income countries, research and academic institutions have not invested enough in promoting and studying **agriculture/agribusiness**, and less so from a **gender perspective**.

Agriculture and **agribusiness research** has mainly adopted a myopic view of a single actor, the farmer. We argue that the failure of agriculture to function as an engine of growth stems not only from ‘production’ considerations but from the organization and performance of the **value chain as a system** where coordination with urban markets, linkages between farmers, traders and processors, diffusion of knowledge, **women’s and men’s specific positions and outcomes in the value chains, policy and support structures** are all pertinent. In SSA 60.5% of population reside in rural areas. **Livelihoods** are dependent on agriculture and all its processes, i.e. gender relations, economic structure, land distribution and everyday practices. As these processes occur spurred by global changes, **rural areas transform, technologically, demographically, socio-economically, politically as well as ecologically and influenced at several spatial levels**. These changes interact with the **agency of social actors** and entail that **structures and institutions, cultural and social norms, including values**, adapt to this rapid **rural transformation**.

**The Panel will interrogate:** how scientists, practitioners and policy makers can contribute to broad-based agricultural growth, SDG 2, 8,10; and inclusive poverty reduction SDG1; through knowledge-creation; in regard to rural transformation, gender and agribusiness entrepreneurship SDG5.

### **Session Contributors**

1.Lettice Rutashobya – University of Dar es Salaam, School of Business, Tanzania

### **Serial and Portfolio Female Entrepreneurs in Rural Areas: Motivations, Outcomes, and Benefits**

Female entrepreneurs are increasingly identified as “drivers of African prosperity”.

2. Johanna Bergman Lodin - SLU

**Entrepreneurship as empowerment? Gendered opportunities and challenges in entrepreneurial urban and peri-urban agriculture in Rwanda**

Peri-urban and urban agriculture and empowerment

3. Alfred Bizoza – University of Rwanda

**Effective Institutional Partnerships for Greater Research Impacts on Agricultural Value Chains Development in Rwanda**

Translating science into practice and policy

4. Anne Kubai, Södertorn University

**Gender equality and women's empowerment in rural Rwanda: capacity to make effective choices and to translate them into desired actions and outcomes, unfettered by cultural sanctions**

Gender equality and women's empowerment

5. Lemayon Melyoki, University of Dar es Salaam,

**African women as entrepreneurs transforming the rural entrepreneurial ecosystem**

Understanding the rural entrepreneurial ecosystem

6. Caroline Wamala Larsson, Stockholm University

**The gendering of technology, or the technology of gendering; reconsidering access to and use of information in agriculture and their contribution to continued subsistence methods**

Gender and technology in agriculture

7. Eularie MUTAMULIZA

**Role of Microfinance Banks in Enhancing Small and Medium Enterprises among Rural women in Rwanda: An Empirical study.**

Financing in rural

8. Linley Chiwona-Karlton, SLU

**African Cuisine Cookbooks through rural women's knowledge *Les Delices de Mikese (Insect Delicacies)***

Launch of an African Cookbook. Translating Science into Practice To promote well-being and responsible consumption

**Student Elevator Pitches**

1. Mesia Illomo,

**Gendered participation in the rice value chain: Exploring the how and why**

PhD Candidate, Tanzania

2. Merezia Wilson,

**Women rural agribusiness-entrepreneurship: beyond farming and processing**

PhD Candidate, Tanzania

3. Mohamed Samkunde,

**Structures that promote women producer groups: from external drivers to self-employment for rural entrepreneurship prosperity**

PhD Candidate, Tanzania

4. Nathan Taremwa, PhD Candidate, Rwanda

**Determinants of Access to Agricultural Credit among Rice and Maize Smallholder Farmers in the Eastern and Western Provinces of Rwanda**

PhD Candidate, Rwanda

**Format of the Panel**

This panel will have six engaging and diverse talks representing Rwanda, Sweden and Tanzania. They will each have 10 minutes talk. The session will be split into two. Three speakers then a 10-minute Q & A from the audience and one point summary.

The second session will follow with another three presentations and a 10-minute Q & A and one point summary. Thereafter the PhD doctoral candidates will make four elevator pitch presentations of their paper 3 minutes each.

During coffee-break the African Cookbook Les Delices de Mikese (Insect Delicacies) will be introduced and available for perusal and orders.



**Session 29. The impact of Covid-19 on sustainable development (SDG 3)**

2021-06-15

14:15 - 15:45

Session 29. The impact of Covid-19 on sustainable development (SDG 3)

## **S29.1 - Small & medium-sized agri-food enterprises amidst the COVID-19 pandemic: Immediate impacts, mitigation strategies and emerging opportunities**

2. Individual abstracts

Assem Abu Hatab<sup>1,2</sup>

**Enoch Owusu Sekyere**<sup>1</sup>

<sup>1</sup> Department of Economics, Swedish University of Agricultural Sciences, Uppsala, Sweden

<sup>2</sup> Department of Economics & Rural Development, Arish University, Al-Arish, Egypt

### **Introduction**

The COVID-19 pandemic has disrupted many activities along agri-food supply chains in developing countries and posed unprecedented challenges to small and medium agrifood enterprises (SMAFEs). A closer look at the emerging literature concerning the pandemic and food chains reveals three main shortcomings. First, the literature has so far focused on the very end of the food chains by investigating consumers' purchasing behavior during the pandemic, food security and nutrition outcomes or focused on the macroeconomic impacts of the pandemic and responses at the policy level. However, there is predominantly anecdotal evidence on the impact of the pandemic on SMAFEs. Second, the extant literature that focused on SMAFEs is dominated by qualitative studies, which tend to explore and describe the effects of the pandemic, rather than measuring the extent of these effects. Third, although the term "impact" refers to consequences either positive or negative that originate from different events, the bulk of the literature is focused on the "negative" effects, while no study in the context of developing countries has investigated the "opportunities" that the pandemic may have created for food chain actors, particularly SMAFEs.

Taking Egypt as a case study and drawing on a survey of 166 SMAFEs, we *first* investigated determinants of COVID-19 impacts on these enterprises. *Second*, we examined the interdependencies between the perceived impacts by the surveyed enterprises and their chosen coping strategies. *Third*, we examined the determinants of perceived opportunities from the pandemic among the surveyed enterprises, and their relation with firm characteristics and the adopted mitigation strategies.

### **Methods**

The empirical analysis consisted of three main steps. First, a principal component analysis was used to categorize the pandemic's effects to understand the underlying causes that led to various perceived impacts. Second, Multiple Indicators and Multiple Causes model was used to measure the structural and measurement components of the perceived effects, mitigation strategies and emerging opportunities. Finally, canonical correlation analysis was used to identify the relationships between the effects, mitigation strategies and emerging opportunities.

### **Results**

The *preliminary* results identified 6 main pathways through which the pandemic affected the surveyed SMAFEs, namely: "consumer demand", "sales and marketing", "cost of production", "labor and human resources", "supply chain" and "firm finances", which were highly asymmetric

across the enterprises. Enterprises with longer cash flow coverage periods and higher values of total assets perceived significantly lower impacts, as cash and assets functioned as a buffer against the pandemic's impacts. Five mitigation strategies were adopted by the SMAFEs pertaining to “supply chain”, “finance”, “marketing”, “innovation”, and “contractual relationships” to mitigate the Covid-19 effects. Furthermore, we found five emerging opportunities that have arisen from the pandemic, namely: “efficiency improvements”, “new markets”, “institutional access”, and “new products & services”. Finally, the results indicated that perceived opportunities strongly interlink with the severity of the perceived impacts, as well as with the nature of the mitigation strategies that SMAFEs implemented to cope with the effects of the pandemic.

## **Conclusions**

The findings of the study imply that the "just-in-time" approach and the absence of a proactive and preventative stance to risk management reduced the resilience of agri-food SMEs to the risks presented by the pandemic. A comprehensive analysis of the effects of extreme events, such as the COVID-19, on agrifood SMEs should consider both the negative impacts and positive emerging opportunities. Finally, our findings should be useful to managers of agrifood businesses in terms of better understanding risks and promotion of risk management practices. More so, they can help design effective policy interventions to mitigate the impacts of the pandemic on Egyptian agri-food SMEs and build up their resilience to future pandemics and shocks.

## S29.2 - IMPACT OF COVID19 ON THE EDUCATION SECTOR IN UGANDA

### 2. Individual abstracts

**Robert Kibaya**<sup>1</sup>

Joan Nannungi<sup>1</sup>

<sup>1</sup> Kikandwa Rural Communities Development Organization (KIRUCODO)

In response to the danger posed by the pandemic to Uganda learners, the Government on March 18, 2020, announced the closure of all schools and educational institutions from March 20, 2020 in a bid to avoid the possible rapid spread of new infections of COVID-19. This measure resulted in the closure of more than 73,200 schools and institutions affecting more than 15,100,000 learners and 548,000 teachers.

Since the COVID-19 lockdown, teachers have witnessed indifferent response from Government and private employers; some private academic institutions cut off communication with their staff since the lockdown was imposed on the education system. Hence, those who will succeed in finding alternative survival avenues are most likely to quit the profession forever.

On the other hand, the government put in place various stopgap remote learning measures to ensure that children continue to learn amid the lockdown, but many of the measures are unsuitable especially to learners in rural communities where access to modern communication tools is still very poor. This has simply accentuated inequalities in the field of learning.

Due to the increasing household poverty brought as a result of COVID19, majority of the parents will not be able to support their children in schools and because of this significant decrease in school fees collection, most of the schools are likely to close up especially the private ones.

The session will engage the participants in a discussion to help answer the following questions below and the outcomes will be disseminated to key stakeholders:

- How best can we attract teachers back to their teaching profession?
- How best can private schools be supported to remain operating?
- How best can learners in rural communities be supported to continue learning during school lockdown?

In the bid to stay focused at achieving Goal 4 on quality education, development partners and governments around the world especially in developing economies need to come up with strategies to confront the COVID-19 impacts on education.

## **S29.3 - HOW COVID-19 HAS INCREASED YOUTH UNEMPLOYMENT AND POVERTY IN UGANDA**

2. Individual abstracts

**Ivan Biregga Semugenyi<sup>1</sup>**

<sup>1</sup> Mukono District NGO Forum

Uganda set to achieve a lower-middle-income status by 2020 with a per capita income target of \$1,033, and upper middle income by 2040 with per capita income target of \$9,500.

Currently, progress towards achieving the goal, as well as the vision, has been slow, and with emerging economic and health shocks such as COVID-19, the slow progress is clearly exacerbated. Uganda is presented with the challenge of becoming increasingly far from realizing the middle-income target. This is because of the devastation that the pandemic has inflicted on the population in terms of income loss emanating from job losses especially among the youths, disruption of production and trade, among others.

According to The World Bank's Poverty and Shared Prosperity 2020 report, the poor remain predominantly rural, young, and undereducated. Four of every five individuals living below the international poverty line reside in rural areas, circa 2018, although the rural population accounts for only 48 percent of the global population.

The closure of business due to effects of COVID-19 is already affecting millions of Ugandans who depend on them for employment. According to the National labour force survey 2016/17, the informal economy alone employs 84.9 percent of the population, 90% of whom are youth between 10-30 years. Closure of business imply that this segment of the population is already out of the market. Survival could imply adoption of negative coping strategies, such as cutting down on consumption to the bare minimum, theft and insecurity. The shock on the services sector, which contributes to 43.5% of GDP and employs close to 43% of the total labour force will significantly affect growth and livelihoods of millions of Ugandans. Overall, the pandemic will directly affect the livelihoods of more than 60% employed in both industry and services, close to 90% of whom depend on these two sectors in urban areas. These sectors are largely informal, employing 90.5% of young people.

The session will engage participants in open discussion to come up with proposals on how to sustainably and innovatively create employment opportunities for the youth.

To limit the current unrests in the world, any society need to come up with strategies to combat increasing youth unemployment.

**Session 30. (Part two) Transformative Forest and Landscape Restoration to achieve the SDGs – Research, theory and practice (SDG 15, 2)**

2021-06-15

14:15 - 15:45

Session 30. (Part two) Transformative Forest and Landscape Restoration to achieve the SDGs –  
Research, theory and practice (SDG 15, 2)

### **S30.1 - Transformative Forest and Landscape Restoration to achieve the SDGs – Research, theory and practice**

#### 1. Sessions

**Aida BARGUES TOBELLA**<sup>1,2</sup>

Rosa Goodman<sup>1</sup>, Lars Laestadius<sup>1</sup>, Leigh Ann Winowiecki<sup>2</sup>, Madelon Lohbeck<sup>2,3</sup>, Ulrik Ilstedt<sup>1</sup>, Anders Malmer<sup>1,4</sup>, Erik Karlun<sup>5</sup>, Gert Nyberg<sup>1</sup>, Madelene Ostwald<sup>6,7</sup>, Dennis Garrity<sup>2,8</sup>, Asmamaw Alemu<sup>9</sup>

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<sup>5</sup> Department of Soil and Environment, Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden

<sup>6</sup> Gothenburg Centre for Sustainable Development (GMV), University of Gothenburg, Gothenburg, Sweden

<sup>7</sup> Department of Technology Management and Economics, Chalmers University of Technology, Gothenburg, Sweden

<sup>8</sup> World Resources Institute (WRI), Washington DC, USA

<sup>9</sup> University of Gondar, Gondar, Ethiopia

#### **Session description**

Healthy ecosystems and the services they provide are a prerequisite to achieving the SDGs. Today, land degradation negatively impacts the livelihoods and well-being of millions of people globally, threatening sustainable development. Forest and Landscape Restoration (FLR) – ‘the process that aims to regain ecological functionality and enhance human well-being in deforested or degraded landscapes’ – has emerged as a key element to meet these challenges and contribute to realizing the SDGs. An estimated two billion hectares of degraded land – an area larger than South America – offer opportunities for FLR, and the global restoration movement is growing bigger. Under the FLR regime, several countries have committed to restore millions of hectares of degraded land as part of the Bonn Challenge and the New York Declaration on Forests, and the UN General Assembly declared 2021-2030 the UN Decade on Ecosystem Restoration, which aims to massively scale up the restoration of degraded ecosystems. We propose two sessions to cover this theme. Session 22 (part I) will focus on the theory and some of the research behind FLR, and Session 30 (part II) will highlight some ongoing Swedish development cooperation and capacity development programs around FLR.

We will discuss the potential FLR pathways to advancing sustainable transformation and achieving the SDGs based on research and experiences from across the global tropics. We will also discuss fundamental questions such as ‘What functions to restore and for whom?’ or ‘How can we ensure truly transformative FLR with outcomes that are sustainable in the long term?’.

The sessions will be co-organized by SLU Global, ICRAF, Focali and SIANI

## Session contributors

### Part I (session 22):

- **Lars Laestadius** (SLU, Sweden): *Forest and Landscape Restoration (FLR) – Requirements and opportunities for a globally meaningful response to Agenda 2030.*
- **Leigh A. Winowiecki** (ICRAF, Kenya): *The power of data-driven networks for effective implementation and monitoring of land restoration*
- **Madelon Lohbeck** (Wageningen University, The Netherlands): *Natural regeneration as a nature-based solution to restoring degraded lands*
- **Aida BARGUES TOBELLA** (SLU, Sweden): *Transformative trees - Impacts of tree-based restoration on water security*
- **Asmamaw Alemu** (University of Gondar, Ethiopia): *Market Driven Afforestation – Charcoal Value Chain Drives Rapid Afforestation*
- **Erik Karlton** (SLU, Sweden): *Commercial forestry for sustainable development - Catalyzing the forest sector development in Ethiopia*
- **Dennis Garrity** (ICRAF & WRI, Kenya): *Restoration that puts people first: It's the only way to succeed*

### Part II (session 30):

- **Anders Malmer** (Swedish Forest Agency, Sweden.): *Locally controlled forest restoration – a governance and market-oriented approach to resilient landscapes*
- **Rosa Goodman** (SLU, Sweden): *The 'Good Wood' value chain model – Transforming the tropical forestry industry to make restorative forest management possible*
- **Ulrik Ilstedt** (SLU, Sweden): *The Sow-a-Seed project: Learning from 22 years of rainforest restoration on Borneo*
- **Gert Nyberg** (SLU, Sweden): *REFOREST Africa – a regional research school in forest sciences*
- **Madelene Ostwald** (University of Gothenburg, Sweden): *Multifunctional land use and food security – examples from AgriFoSe2030*

## How the sessions will be run

Part I (session 22) will start with an icebreaker in Mentimeter. After the icebreaker, there will be 6 min presentations by the seven speakers, with two rounds of questions from the audience. Session II will start with a recap of session I and another participatory exercise in Mentimeter followed by 6 min presentations by the five speakers. After this, there will be another round of Q&A. The session will end with a concluding discussion with the audience.



**Session 31. Gender expertise and the construction of sustainable development  
(SDG 5, 16)**

2021-06-15

14:15 - 15:45

Session 31. Gender expertise and the construction of sustainable development (SDG 5, 16)

## S31.1 - Gender expertise and the construction of sustainable development

### 1. Sessions

#### **Elisabeth Olivius<sup>1</sup>**

Jenny Hedström<sup>2</sup>, Susanne Alldén<sup>3</sup>, Blen Sahilu<sup>4</sup>, Camille Pellerin<sup>5</sup>, Maria Eriksson Baaz<sup>5</sup>

<sup>1</sup> Umeå university

<sup>2</sup> Örebro University

<sup>3</sup> Linneaus University

<sup>4</sup> Addis Ababa University

<sup>5</sup> Uppsala University

#### **Session description**

In recent years, the profession of gender experts has emerged as a significant force in international governance. In fields such as development cooperation, peacebuilding, and humanitarianism, gender experts are employed by UN agencies, donor governments, and NGOs, and involve themselves in shaping the agendas and practices of these organizations. The widespread adoption of gender policies and frameworks by international organizations and governments has created a demand for gender experts to help them realize their commitments to mainstream gender and promote equality. However, while this might be heralded as a major feminist success, research on gender experts and expertise has highlighted how organizational constraints make it difficult for feminist-minded gender experts to promote transformative change from within organizations. Further, it has demonstrated how the deeply political encounter between international gender expertise and local contexts, actors and agendas is often fraught with tension and power struggles.

This panel session examines how gender experts in various fields of international governance take part in constructing notions of sustainable development. In the age of the sustainable development goals, how do gender experts working on poverty reduction, peacebuilding, migration, disaster risk reduction and a range of other issues contribute to shape perceptions of what sustainable development means, and how it should be pursued in practice? To what extent does the knowledge they produce infuse feminist commitments and goals into sustainable development agendas? And how is their knowledge and its programmatic implications received in local contexts where policies and programs for sustainable development are implemented?

Addressing these questions, the panel interrogates the establishment of gender expertise as a source of power and authority in international governance, and sheds new light on the implications of this for the content and practical implementation of global sustainable development agendas.

#### **Session contributors**

This panel session consists of three paper presentations:

1. Elisabeth Olivius & Jenny Hedström: *The politics and effects of international gender expertise in peacebuilding in Myanmar: identifying and localising feminist peace*
2. Susanne Alldén: *Fighting the equal fight – efforts to promote gender mainstreaming in UN peace operations*
3. Blen Sahilu & Camille Pellerin: *What shall we call “it”, sirat’e tsota, gender sensitivity, gender equality, or gender transformation? – Negotiating Social Change and Sustainable Development in*

## *Ethiopia*

These papers explore the politics and effects of international gender expertise in development aid and peacebuilding efforts in a range of cases: Myanmar, DR Congo, and Ethiopia. In the case of Myanmar, Olivius and Hedström examine how the recent influx of international aid has produced a new cadre of international gender experts, many of whom work with implementing the UN women, peace and security agenda. The focus for the paper is the power dynamics of the encounter with local women's activism, and how competing visions for what a feminist peace means play out in this context. Alldén examine the diffusion of gender mainstreaming in UN peacekeeping missions. Looking closer at MONUSCO in DR Congo, a mission which at first glance appears as a success story for gender mainstreaming, she explores the impact this has had on the women, peace, and security agenda and the UN's work towards achieving sustainable development goal number 5. Sahilu and Pellerin interrogates how gender experts in charge of operationalising gender equality under the SDGs in development aid in Ethiopia grapple with multifaceted challenges, not least making the concept of gender equality locally intelligible beyond its liberal connotations.

Together, these papers push the frontiers of research on gender expertise, in particular with regards to how gender experts and the knowledge they produce contribute to shaping conceptions of sustainable development and the implementation of the SDGs.

Please note that a travel grant for contributors from developing countries is requested for Blen Sahilu (Ethiopia). Please contact session convener Elisabeth Olivius if more information is needed!

### **Session format**

Each paper presentation will be given 15 minutes maximum. Time is kept by the session convener/chair, Elisabeth Olivius. After the presentations, discussant Maria Eriksson Baaz will offer reflections on the papers and their contributions, followed by at least 30 minutes of Q&A with the audience. This ensures a good balance between presentations and discussion, and a dynamic and thought-provoking session.

**Session 32. Development for whom: Revisiting inequality and social injustice in sustainable development (SDG 10)**

2021-06-15

14:15 - 15:45

Session 32. Development for whom: Revisiting inequality and social injustice in sustainable development (SDG 10)

## **S32.1 - Development for whom: Revisiting inequality and social injustice in sustainable development**

### 1. Sessions

#### **Grace Wong<sup>1</sup>**

Hanna Sinare<sup>1</sup>, Amanda Jimenez Aceituno<sup>1</sup>, Alizee Ville<sup>1</sup>, Mawa Karambiri<sup>2</sup>, Tim Daw<sup>1</sup>, Anamika Das<sup>3</sup>, Nadia Sitas<sup>4</sup>, Andrea Downing<sup>5</sup>

<sup>1</sup> Stockholm Resilience Centre (SRC), Stockholm University, Sweden

<sup>2</sup> Department of Forest Sciences, University of Helsinki, Finland

<sup>3</sup> Ashoka Trust for Research in Ecology and the Environment (ATREE), India

<sup>4</sup> Centre for Complex Systems in Transition (CST), Stellenbosch University, South Africa

<sup>5</sup> Royal Swedish Academy of Sciences, Sweden

#### Session description

This session aims to examine the problems of inequalities and social injustice in a rethinking of the development process. We live in a time of global environmental decline and global interconnectedness which presents new challenges for understanding and implementing sustainable development. The implementation of development agendas will need to address difficult and intersecting problems, ensuring coherence across a diverse set of Sustainable Development Goals, and understanding the tensions and trade-offs between them. The UN identifies three overarching social challenges that capture the most pressing contemporary problems reflected across the SDGs: *inequalities, conflict* and *unsustainable practices* (UNRISD 2015).

In recent decades, development scholars have focused on questions of poverty and vulnerability. Poverty, vulnerability and inequality do not operate in isolation but rather, are manifested in structural, material, institutional and geographical ways – and are co-constituted, and re-created, within specific political and socio-economic contexts, processes, and relations. Development actions have both caused rapid changes in natural and socio-economic systems and have shown to reinforce inequalities in gender, class, ethnicity and age, and in constraining agency and access and rights to resources.

Thus, our proposal of sustainable development – characterised by improvements in human well-being and by social relations that are equitable and compatible with principles of democratic governance and justice – is dependent on transformative changes in the development process. This session examines political and social consequences of business-as-usual development based on the pursuit of growth and implementation of SDGs and explores the potential for transformative approaches to development sensitive to intersecting inequalities.

#### Session contributors

The selected papers present empirical research on inequality and sustainable development in the

## Global North and South.

- **Amanda Jiménez Aceituno, Spain.** *Analysing local approaches towards implementing the Sustainable Development Goals (SDGs) in Africa.* Building on practices of innovative local initiatives from the Seeds of Good Anthropocenes database, we explore different ways SDGs can be addressed at local scales and discuss the implications for the bottom-up and top-down implementation of the Agenda 2030 from an equitable sustainability perspective.
- **Alizée Ville, France,** will provide insights on gaps between gender and climate mainstreaming in natural resource management through a socio-political lens. We carry out a *discourse analysis of Swedish forest policy* using Bacchi's "What is the problem represented to be?" framework and examine if/how policy reinforces long-standing narratives or enables transformations for sustainable and equitable development.
- **Mawa Karambiri, Burkina Faso.** *Behind the veil of gender equality in climate and natural resources management in Burkina Faso.* Though the rural sectors are prominent in Burkina Faso's sustainable development policies, they remain isolated from gender equality goals. This paper assesses how global equality and sustainability discourses promoted by development agencies (including SIDA) are translated to national and local levels, and in the implementation of development projects.
- **Hanna Sinare, Sweden,** will give a perspective on the *factors shaping development opportunities for rural youth in Burkina Faso.* Small-scale rainfed agriculture is currently dominant but not attractive to young people, low yielding and with high risk of yield loss, exacerbated by climate change. Based on interviews and analysis of policy documents, she analyses if interventions for rural youth fit with perceptions of opportunities and constraints among different groups of young people (e.g. gender, education level).
- **Anamika Das, India.** *How benefits from nature reinforce or mitigate inequality under different social-ecological conditions and governance regimes.* Drawing on fine-grained social-ecological datasets across 9 countries in the Global South, the analysis explores the degree to which existing assets and entitlements intersect with materiality of ecosystem services such that they exacerbate inequality (through elite capture) or mitigate inequality (by maintaining safety nets and income opportunities for poor/marginalised people).

### Session format

This session will be organized as follows:

- Introduction: framing justice as part of transformative sustainable development (**Nadis Sitas, South Africa, 5 mins**)
- Speed presentations of 5 papers (7 min each)
- Invited discussants will dissect implications of this research and identify critical questions that have not been addressed (20 mins)
- The session participants will engage in an interactive discussion in small groups (25 min)
- The moderator will provide a closing summary (5 min)

Discussants: **Andrea Downing**, The Royal Swedish Academy of Sciences; **Tim Daw**, SRC

Moderator: **Grace Wong**, SRC

**Session 33. Working Online: Participatory Media in the Pandemic (SDG 9)**

2021-06-15

14:15 - 15:45

Session 33. Working Online: Participatory Media in the Pandemic (SDG 9)



### **S33.1 - Working with mobiles: Participatory media workshop**

1. Sessions

**Christopher High**<sup>1</sup>

<sup>1</sup> Linnaeus University

#### **Session Description**

In the last 60 years, technological advances have driven down the cost and operational complexity of media production equipment, allowing space for the development and broad spread of various participatory media techniques, such as participatory video in the late 1960s and digital storytelling in the 1990s. The advent of practical laptop-based media editing, portable digital projection and SD-card based recording in the 2000s was matched by a growth in the scholarship on participatory media, and researchers, community workers and activists collaborated to develop training methods and quality standards for the new generation of practice. The recent rapid spread of internet access, social media use and mobile device ownership, even in low resource contexts, offers a new opportunity for research and action to address the challenges of sustainable development in communities around the world. The social affordances of internet-based practice are different in some important ways, and this workshop will focus on emerging opportunities for participatory media practice. There will be an opportunity to consider topics such as the hard and soft skills involved in participatory media work, ethics in an age of social media, and the range of evidence and potential impacts that such practice can generate.

#### **Session Contributors**

*Facilitator:* Chris High is a Senior Lecturer in Peace and Development at Linnaeus University, with 20 years experience of participatory projects in Africa, India and Eastern Europe.

*Participants:* Are invited to contribute their skills, viewpoints and good will to the workshop, sharing their ideas and perspectives so that we can all learn from one another.

#### **Workshop Methods**

The workshop will provide a hands-on opportunity to taste the ubiquity of media production opportunities, as well as for lively discussion of the advantages and pitfalls of technology in participatory practice. There will be three parts to the activity: (i) An introduction and some examples, (ii) a hands-on exercise, and (iii) a discussion amongst participants on the issues raised in the workshop.

**Session 34. Electronics in Circular Economy – The Role of Critical Metals (SDG XX)**

2021-06-15

14:15 - 15:45

Session 34. Electronics in Circular Economy – The Role of Critical Metals (SDG XX)

## **S34.1 - Electronics in Circular Economy – The Role of Critical Metals**

1. Sessions

**Antonio Mires**<sup>1</sup>

Mridul Pareek<sup>1</sup>

<sup>1</sup> Ghent University

### **1. Session Description:**

The purpose of this session is to explore the role of critical metals in a “growing economy” without costing the development of new technologies. The session aims to spark discussions on how sustainable development goals can be used to better manage resources crucial to electronics supply chain.

Current trends of automatization and renewable energies are shifting the way we use raw materials, specially metals. Larger quantities and higher diversity of metals are required, which threatens the already scarce supply of critical metals.

With an increase in demand for raw materials and production of goods, the total extracted stocks will also increase, as will their potential to be recycled. It is important to understand these challenges, the opportunities, and future trends in order to make informed decisions which go alongside the SDG goals.

This session will link academic research, industrial advancements and real-life practices of circular economy and sustainable use of materials. The attendees will engage in debates focused on raw material supply (especially critical metals) for electronic products. The three dimensions of sustainability: economic, environment and society will be discuss using the SDG as a guiding principle for the development of round table discussions.

### **2. Contributors:**

#### **Antonio Mires Valdez – Peru**

Antonio is passionate about solving problems, especially the ones related to the environment. He has completed his bachelor's degree in environmental engineering at the National Agrarian University in Lima, Peru where he grew a strong interest for the mining sector and the supply chain of metals.

For this session, Antonio will provide a techno-economical overview regarding: the extraction of natural resource, scarcity and the challenges associated with the production, consumption and recycling of metals. Industry case will be used to show how technical solutions can increasing the recyclability and recovery of valuable metals from ICT waste streams.

#### **Mridul Pareek – India**

Mridul's interest lies in solving societal problems using technology. Mridul has a bachelor's in chemical engineer from Indian Institute of Technology Gandhinagar and an MSc. in environmental policy from Central European University, Budapest. He has a strong interest in the EUs agenda for sustainability, responsible procurement and circular economy.

Mridul's part for this session, will be to discuss circular economy's potential in combatting resource scarcity. This presentation would outline and explore three key dimensions of social acceptance (i.e., socio-political, market, and community acceptance) pertaining to innovation with electronics procurement and waste management.

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Antonio and Mridul are currently enrolled in Sustainable and Innovative Natural Resource Management (SINReM) master's program developed by the European Institute of Innovation and Technology (EIT) Academy. The program takes place between three universities in Europe - TU Bergakademie Freiberg, Ghent University and Uppsala University.

Being members of EIT Raw Material network, they engage closely with industry partners from: Umicore, Vito and Sandvik. They have collaborated with non-governmental organizations like Catapa in Belgium, the Centre for Advanced Process Technology for Urban Resource (Capture) and other upcoming start-ups. All these interactions have shaped their understanding of the how a circular economy can optimize the use of resources in an interconnected supply chain.

They are entrepreneurs who, after winning the Copernicus 2019 Hackathon in Brussels and the 2020 Parsec accelerator, have started a company called "ExaMine". ExaMine uses satellite data to remotely monitor mining leakages, contributing to a more sustainable mining operation.

### **3. Session structure:**

The participatory session will consist of 3 parts:

#### **I. Introduction: 20 minutes**

Participants will familiarize themselves with concepts from circular economy and raw materials. Focus on the relevance of scarce raw materials and critical metals in the economy, the challenges and opportunities.

#### **II. Case studies: 20 minutes**

A series of case studies of companies, products, entrepreneurship, government policies and social innovations will be presented. These will be complemented by knowledge from the participants to create a larger framework of examples.

### **III. SDG discussion: 30 minutes**

Participants will be distributed into smaller groups of 3 – 5 they will choose a SDG that have a clear relationship with the issues regarding critical metals. The SDGs will be used as a sustainability assessment tool to evaluate trends in circular economy and resource procurement for ICTs.

### **IV. Group presentation: 20 minutes**

Each group will present what had been discussed within their group.

**Session 35. Agroforestry, Livelihoods and Resilience: How to translate research into policy and practice at scale (SDG 15, 2)**

2021-06-16

10:45 - 12:15

Session 35. Agroforestry, Livelihoods and Resilience: How to translate research into policy and practice at scale (SDG 15, 2)

## **S35.1 - Agroforestry, Livelihoods and Resilience: How to translate research into policy and practice at scale**

### 1. Sessions

**Ingrid Öborn**<sup>1,2</sup>

Elisabeth Simelton<sup>3</sup>, Sigrun Dahlin<sup>4</sup>, Pierre Chopin<sup>1</sup>

<sup>1</sup> Swedish University of Agricultural Sciences (SLU), Crop Production Ecology, P.O Box 7043, SE-75007 Uppsala, Sweden

<sup>2</sup> World Agroforestry (ICRAF), UN Avenue, Box 30677-00100 Nairobi, Kenya

<sup>3</sup> World Agroforestry (ICRAF), Viet Nam Country Office, 13th floor HCMCC Tower, 249 A Thuy Khue Street, Thuy Khue Ward, Tay Ho District, Ha Noi, Viet Nam

<sup>4</sup> SLU, Soil and Environment, P.O Box 7014, SE-75007 Uppsala, Sweden

### **Agroforestry, Livelihoods and Resilience: How to translate research into policy and practice at scale**

**Organizers and moderators:** Elisabeth Simelton, World Agroforestry (ICRAF), Sigrun Dahlin, Soil and Environment, SLU, Pierre Chopin, Environmental Geography, Vrije Universiteit, Amsterdam and Ingrid Öborn Crop Production Ecology, SLU

**Target audience:** Researchers, practitioners, consumers, NGOs, policy makers, private sector actors, students, investors, research and development funding agencies

**Ambition:** Showcase the role of agroforestry and agroforestry research and how it can advance sustainable transformation of rural livelihoods and landscapes

Agroforestry as concept and research topic is about 50 years old but it has been practiced by farmers for thousands of years. In simple terms, agroforestry can be defined as ‘**the interaction of agriculture and trees, including the agricultural use of trees**’. Agroforestry is increasingly a proposed solution for improved livelihoods and resilient landscapes. Adoption is scattered for various reasons, including inefficient policies (e.g. short-term, commodity-oriented support instead of systems), markets and investment. What to grow in agroforestry system also depend on local environmental conditions, so difficult to scale.

Farmer factor in numerous aspects when planning whether to plant a tree or not: the risk of natural disasters destroying crops and securing a stable income are two. Across Asia and Africa, particularly in middle-income countries, farmers are increasingly choosing between other incomes or to transform into high-value farming strategies to cut back the growing gaps between rural and urban living standards. With less than 2 hectares of land for a farm household, tree diversification could spread risks and generate more stable incomes? How do we avoid that agroforestry becomes a poverty or gender trap? How can sustainable and innovative value-chains be developed? What are promising examples of policy support for this process?

In this session we show some key agroforestry interventions, their implications for livelihoods and resilient landscapes. We discuss the role of committed policy support and factors enabling the expansion of agroforestry.

## **Session contributors and organization**

The panel session will start with four short presentations followed by some questions and answers in plenary (in total 45 min). Chair Sigrun Dahlin, SLU

1. Taking grassroot agroforestry research from small scale into local and national policy - the AFLI project in northwest Vietnam, La Nguyen & Nguyen Mai Phoung, ICRAF Vietnam;
2. Practitioners scaling agroforestry in the Lake Victoria region, Wangu Mutua, Vi Agroforestry
3. Developing a national agroforestry policy – experiences from India and Nepal, Javed Rizvi, ICRAF South Asia
4. Creating enabling environments via developing regional policy and starting national roadmaps – insights from the preparation of the ASEAN Guidelines for Agroforestry Development, Delia Catacutan, ICRAF Southeast Asia

Interactive part where group meetings will discuss selected questions around the topic for some written outputs to be presented in plenary (45 min). Facilitator: Elisabeth Simelton. ICRAF Vietnam

### *How to translate agroforestry research into policy and practice at scale?*

Participants will be divided into groups of 4-6 people with some questions to discuss/solve. The task will be to formulate the 3-4 key questions agroforestry research should focus on to provide evidence for (i) policy makers (local, national, international), (ii) practitioners (farmers, extension, development NGOs, teachers), (iii) consumers and (iv) investors/funders (private, public, donors for implementation).

We aim at making a summary and synthesis of the session in form of a publication



**Session 37. Hybrid governance: What does it mean for sustainable futures?  
(SDG 17, 10)**

2021-06-16

10:45 - 12:15

Session 37. Hybrid governance: What does it mean for sustainable futures? (SDG 17, 10)

### **S37.1 - Casting a wider net: Emerging of labour standards by non-state actors in Thailand fishing industry**

#### 2. Individual abstracts

**Alin Kadfak**<sup>1</sup>

<sup>1</sup> Researcher at Swedish University of Agricultural Sciences

Revelations of ‘modern slavery’ in the Thai fishing industry have received widespread international attention through media and civil society investigations exposing widespread trafficking and slave-like practices for migrant fishworkers. The international scandal influenced the European Union in 2015 to give a yellow card to Thailand, a warning indicating possible economic sanctions unless Illegal, Unreported and Unregulated (IUU) fishing practices are eliminated. In the same period, the US government had changed the status of Trafficking in Persons Report from tier 2 to tier 3, the lowest level with minimum standards for the elimination of trafficking. In response, both Thai government and intergovernmental private and public organisations are developing labour standards to address the ongoing problems. This paper explores how labour standards are interpreted, implemented and expanded through emerging activities by non-state actors in Thai fisheries reform. The paper bases its analysis on the interviews with companies, non-profit funders, Thai civil society organisations, international environmental and labour organisations and fishing communities in Thailand, a short field visit between December 2019 – January 2020, together with secondary documents and online resources. Labour standards, in this paper, refer to standards that set out by governments, international organizations and firms that relate to labour issue. Labour standards do not limit only to state’s regulations, but also refer to the broader standards, such as codes of conduct, CSR, certificates and international labour standards. The beyond-state labour standards are implemented largely by non-state actors, which empirically emerge as an important group of actor in this reform. I draw from three concepts of Political Ecology: *subjectivity*, *expertise/knowledge and authority* to comprehend how non-state actors define ‘who are the (vulnerable) workers?’ and ‘how can labour standards set, and why?’. The paper hopes to generate more discussions toward the increasing involvement of non-state actors in sustainable standards beyond fisheries.

## **S37.2 - Sorting out palm biofuels: a hybrid solution skewed towards Swedish biofuel futures**

2. Individual abstracts

**Marie Widengård<sup>1</sup>**

<sup>1</sup> Stockholm Environment Institute

### **Sorting out palm biofuels: a hybrid solution skewed towards Swedish biofuel futures**

This paper discusses the process of sorting out palm biofuels from the Swedish biofuel mix. By tracing the Swedish attempt to rid palm products from the fuel mix by first reclassification and then phase out, the paper shows the arbitrary power of the biofuel sustainability standard to control what ends up in our tanks. Instead of the standard working as a neutral tool, the paper illustrates how the hybrid approach can be used to frame some resources (palm) as unsustainable while others (pine) enjoy freedom from accountability.

### **S37.3 - Unpaid care and domestic work: corporations and NGOs to the rescue?**

2. Individual abstracts

**Catia Gregoratti**<sup>1</sup>

Sofie Tornhill<sup>2</sup>

<sup>1</sup> Lund University

<sup>2</sup> Linnaeus University

This paper examines a range of partnerships around SDG 5, more specifically partnerships between corporations and NGOs that seek to address the gender division of labour in care and domestic work (SDG 5, target 5.4). For over two decades, scholars in the field of gender and development have pointed to the new responsibilities that corporations are assuming to address gender inequalities. Such responsibilities often translate in normative commitments to global codes of conduct, cause-related marketing campaigns on women's economic empowerment, bottom of the pyramid schemes enlisting women entrepreneurs, as well as philanthropic investments and partnerships focused on expanding economic opportunities for women and girls in the global South. Existing literature has often critiqued such commitments and empowerment projects for their contingency, limited reach, and equally importantly, for hinging on a rationality of empowerment that privileges paid work and invisibles double and triple burdens. Such critiques have not gone amiss and in recent years we have witnessed a proliferation of business and NGO partnerships with the explicit aim of lessening the burdens for unpaid care and domestic work. In this paper we take stock of such partnerships and, in conversation with social reproduction theory, we ask: why have such partnerships emerged? How do they intrude in the private sphere? And what are the limits of these interventions?

### **S37.4 - Unpacking “responsible mining”: An outlined political ecology of the certified gold value chain**

#### 2. Individual abstracts

**Muriel Côte**<sup>1</sup>

<sup>1</sup> Human Geography, Lund University

Artisanal Small-scale gold Mining (ASM) holds key but contested development potential. The sector currently employs around 100 million people worldwide in about 80 countries, many of them located in the Global South. ASM creates jobs, but it also takes place through exploitative work practices, tax evasion, and the use of chemicals that have significant environmental and health impacts. In the last decade, a new approach to the ASM-sustainable development nexus has emerged. In the midst of multiplying voluntary standards in the extractive industries, several initiatives to certifying gold, in particular ASM gold, have emerged. Since these initiatives are quite new, research and literature is scant, but it generally features a rather critical take on the promises that the certified gold value chain aims to deliver (Hilson et al. 2016). In this paper I build on this research, and I draw on the wider political ecology literature on certified commodities (Elden 2011; Vandergeest et al. 2015; Widengård et al. 2018) to outline what a political ecology of the certified gold value chain might look like. Based on a review of the literature, and on preliminary interview and document analysis data, I will emphasise three key issues: the fact that certified gold focuses on ASM, rather than Large-Scale Mining; the issue of competing definitions and conflicts of interests in defining what ‘fair’ might mean; and the need to rethink accountability in a context where it is not clear who certifies the certifiers. The paper hopes to draw attention to the social and environmental justice issues underlying current governance approaches to “global responsibility”.

#### Literature:

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**Sessoin 38. Sustainable food systems (SDG 2, 1)**

2021-06-16

10:45 - 11:45

Sessoin 38. Sustainable food systems (SDG 2, 1)

### **S38.1 - Rangeland management practices for enhancing food security in Miombo woodlands: Overview**

#### 2. Individual abstracts

**Peter Rogers Ruvuga**<sup>1,2</sup>

Ewa Wredle<sup>1</sup>, Catherine A. Masao<sup>2</sup>, Ismail Selemani<sup>3</sup>, Anthony Sangeda<sup>3</sup>, Gert Nyberg<sup>4</sup>, Cecilia Kronqvist<sup>1</sup>

<sup>1</sup> Swedish University of Agricultural Sciences, Department of Animal Nutrition and Management

<sup>2</sup> University of Dar es Salaam, Institute of resource Assessment

<sup>3</sup> Sokoine University of Agriculture, Department of Animal, Aquaculture and Range Sciences

<sup>4</sup> Swedish University of Agricultural Sciences, Department of Forest Ecology and Management

Miombo are unique dry woodlands in Eastern, Central and Southern Africa dominated by *Brachystegia* tree. These woodlands are severely degraded owing to various human activities including livestock production. The study was undertaken in Kilosa, Tanzania to investigate the current rangeland-livestock management practices among livestock keepers in miombo. Also, it aimed to assess rangeland condition, forage quantity and quality variation throughout the year in miombo. The study methods comprised of household interview, focus group discussion, rangeland inventory and forage laboratory analysis. Indigenous rangeland practices, vegetation cover, wood density, forage nutritional values and aboveground biomass were investigated. There was lack of rangeland improvement practices among livestock keepers in miombo woodlands. Livestock keepers attributed this to poor land tenure regime. Tree density and canopy cover was adequate and within the woodlands range. Vegetation cover varied significantly throughout the year with different proportion of annual and perennial grasses. The desirable perennial grasses proportions were at the lowest during the dry months, causing increase in undesirable plant species *i.e.* weeds. Moreover, sampled forage species had lower nutritional values compared to livestock requirement; indigestible contents were high during the dry months and in early rainy season. Aboveground forage biomass was estimated to be low to sustain livestock and it significantly differed throughout the year with higher biomass following the rainfall spell. It was concluded that rangeland condition in Kilosa miombo woodlands was poor due to poor desirable perennial grass cover, forages of low nutritional value and changes in aboveground biomass. Therefore, there is a need to introduce rangeland improvement practices such as weed control and grazing management that follows annual variation in forage species and quality in relation to livestock requirement.

## **S38.2 - Measuring “The Global Burden of Crop Loss” in order to increase food security, protect the environment and secure livelihoods**

2. Individual abstracts

**Laura Doughty**<sup>1</sup>

Katherine Denby<sup>2</sup>, Sarah Gurr<sup>3</sup>, Jeffrey Ried<sup>4</sup>, Roger Day<sup>1</sup>, Richard Shaw<sup>1</sup>, Cambria Finegold<sup>1</sup>

<sup>1</sup> CAB International

<sup>2</sup> University of York

<sup>3</sup> University of Exeter

<sup>4</sup> Luma Consulting

### **Introduction**

To reach zero hunger SDG targets, it is estimated that an increase in food production of 25-100% will be required by 2050. Reducing crop losses on current agricultural land is a first step to meeting this need. Additionally, improving climate resilience and sustainability of agricultural practices, whilst reducing environmental impact, will help secure livelihoods (SDG2), increase food security (SDG2), and protect the environment (SDG15). We, therefore, need to identify key drivers of crop loss to facilitate efficient and confident allocation of our efforts and resources to improve food production outputs on a global scale.

The Global Burden of Crop Loss initiative aims to provide rigorous, authoritative evidence on impacts, causes, and risk factors of crop loss to help direct funding, policy, and research efforts to secure farmers' livelihoods by allowing them to grow more and lose less of what they produce.

### **Methods**

Inspired by the Global Burden of Disease for human health, a system that provides comprehensive, authoritative data on the impact of hundreds of health problems has transformed the health agenda over the past 25 years. The initiative will produce similarly transformative outputs to improve our ability to predict the impact of emerging threats, allocate resources between pests, understand likely plant health impacts of climate change, and systematically develop investment in, and capacity of, plant health systems.

### **Results**

An assessment of the data landscape has informed our proposed framework and analytical methods and is feeding into the development of metrics that can be widely interpreted and used. A collaborative network has been developed that includes subject matter experts in the fields of crop pest and disease research, agricultural economics, data science, and earth observation modelling. Employing a user-centered design approach, we have engaged with key stakeholders to define scope and focus. This includes funders, policymakers, regulators, agricultural research institutions, extension, and advisory services.

### **Conclusions**

The proposed delivery framework has been put together based on outputs from this scoping project. Various subject areas and skillsets have been identified and organised into themes. Preliminary themes focus on assessing crop loss on a global scale, attributing the loss to biotic and abiotic causes, metric definition and filling the gaps. Once assigned to expert working groups, identified from our extensive key informant and stakeholder consultation, outputs from these thematic areas will enable us to deliver the first iteration of the Global Burden Crop Loss estimates in the next 3 to 4 years.





### S38.3 - Potential of indigenous *Bradyrhizobium* nodulating soybean varieties in contrasting agroclimatic zones to promote food security

2. Individual abstracts

**Mburu Simon**<sup>1</sup>

Ezekiel Mugendi Njeru<sup>2</sup>, John Maingi<sup>2</sup>

<sup>1</sup> Department of Biological Sciences, Chuka University

<sup>2</sup> Department of Biochemistry, Microbiology and Biotechnology, Kenyatta University

**Introduction:** Grain legumes such as soybeans in Sub-Saharan Africa play a key role in income generation, food and nutrition security in small-scale farming systems. Moreover, due to their symbiotic association with nitrogen-fixing rhizobia, such legumes can contribute widely to soil fertility. Despite the development of promiscuous varieties that nodulate freely with indigenous rhizobia, a huge pool of biodiversity that can contribute to current elite rhizobia strains remains unexploited. Notwithstanding various studies on the usefulness of rhizobia with grain legumes, their effectiveness in nitrogen fixation and overall input to system productivity, a number of concerns remain unsolved in order to realize grain legume benefits.

**Objective:** The objective of the study was to identify effective native *Bradyrhizobium* strains that nodulate promiscuous soybean (*Glycine max* L. Merrill) for sustainable legume production.

**Methods:** Native *Bradyrhizobium* were isolated from nodules of two soybean varieties (SB8 and SB126) planted in trial fields in Embu and Tharaka-Nithi Counties in Eastern Kenya. Authentication of the isolates and assessment of symbiotic effectiveness was carried out in the greenhouse. The experiments were set in a complete block design with five treatments comprising Biofix (commercial), nine indigenous isolates, Biofix + indigenous consortium, a consortium of indigenous isolates and uninoculated control arranged in a complete randomized design (CRD) with three replicates. Field experiments, on the other hand, were set out as split-plot design in a randomized complete block design (RCBD) replicated four times with five treatments (Biofix, best effective indigenous isolate RI9, consortium of indigenous isolates, Biofix + indigenous consortium and uninoculated control).

**Results:** In the greenhouse bioassay, the inoculation of soybeans with native *Bradyrhizobium* had a significant effect ( $p < 0.001$ ) on nodule and shoot dry weight. The best performing isolates (RI7 and RI2) from greenhouse set up outperformed commercial *Bradyrhizobium* (USDA110) in terms of symbiotic effectiveness of 119.17 %, 142.35 %, and 101.01 % respectively when compared to nitrogen control. Results from the field experiment showed that indigenous isolates were competitive where they improved significantly soybean biomass and yield ( $p < 0.0001$ ). In addition, nodule dry weight recorded a significant positive correlation ( $r = 0.580$ ,  $p < 0.05$ ) with grain yield parameters.

**Conclusion:** The study demonstrated the existence of strong economic and agronomic value in inoculation of soybean with native *Bradyrhizobium* isolates that can lead to sustainable legume production and reducing the effects of climate change and food insecurity.

### S38.4 - Using fodder grass strips for terrace formation and erosion mitigation

#### 2. Individual abstracts

**Birgitta Sjödell**<sup>1</sup>

Hanna Thelberg<sup>1</sup>, Hung Van Do<sup>1,2</sup>, Van Thach Nguyen<sup>2</sup>, Nguyen La<sup>2</sup>, A. Sigrun Dahlin<sup>3</sup>, Ingrid Öborn<sup>1,4</sup>

<sup>1</sup> Swedish University of Agricultural Sciences, Department of Crop Production Ecology

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<sup>3</sup> Swedish University of Agricultural Sciences, Department of Soil Sciences

<sup>4</sup> ICRAF - Kenya

**Introduction:** Soil erosion is a major threat to soil functions in many parts of the world. Well-designed agroforestry (AF) systems can mitigate erosion, but need to include crops generating early income to offset high initial investment. Mountainous Northwest Vietnam has large areas of sloping land that are monocropped with sole maize. Smallholder farmers have been supported in introducing agroforestry (AF) systems including fruit trees and fodder-grass strips in so-called Exemplar Landscapes, enabling testing on a relatively large scale.

**Methods:** A 50 hectare Exemplar Landscape established in Son La Province 2015 was in 2019 scrutinized for fields with either the same overall AF system or monocropped maize in sole stand (MM). Three fields of each system were selected which had similar farmer management and slope gradient (avg 23°), and were used as replicates. The AF system on the selected fields included grass strips (consisting of double-rows of fodder grass) at 10 m distance along the slope, fruit trees above each double-row of grass, and the remaining area grown to maize. In each field, a plot covering the most homogeneous part and including three sections of grass strip + one tree + maize was selected for measurements. Using a water house and meter stick, the volume of the formed terrace in the AF treatment was estimated as  $w \times (h_1 - h_2) / 2$ , where  $w$  = the width of the terrace equaling the double row of grass + 0.5 m,  $h_1$  = the height difference from the terrace base to the highest point of the terrace, and  $h_2$  = the height difference from the lower grass rows surface to highest point of the terrace. The measurements were carried out at three terraces per field and replicated thrice per plot with an interval of 10 m along the contour. Soil erosion between the grass strips was estimated from the depth of topsoil.

**Results:** The grass strips had on average accumulated 0.32 m<sup>3</sup> soil per meter terrace length, with no significant difference between the upper, middle and lower part of the slope. The soil mass in the terrace was similar to the soil lost (0.36 m<sup>3</sup> per meter) from the area between two grass strips. The MM plots showed no terrace formation, suggesting blanket erosion in the plots.

**Conclusions:** Results suggest that grass strips could successfully intercept the eroded soil at the site and had initiated terrace formation after 5 cropping seasons.

### **S38.5 - Hinders to smallholder livestock production in Northern Uganda: Moving beyond the threat of animal disease**

2. Individual abstracts

**Anna Arvidsson<sup>1</sup>**

Klara Fischer<sup>1</sup>

<sup>1</sup> Department of Urban and Rural Development, Division of Rural Development, Swedish University of Agricultural Sciences, Sweden

Smallholder livestock rearing gives the possibility to reduce vulnerability, escape poverty (SDG 1) and strengthen food security (SDG 2). Livestock can create a buffer if crops fail, serve as banks, are valuable for ceremonial purposes, and be an important source of protein. A key hindering factor here is animal disease. Disease creates uncertainty in animal husbandry, risk for losses and also potential human health threats. At the same time animal diseases are both more prominent, and more difficult to control in contexts of high poverty. Thus finding ways of preventing and curing livestock diseases in the contexts of the poor is an important development challenge.

This abstract reports early findings from four months of ethnographic field work in Northern Uganda 2019, and a survey distributed to 101 smallholders where they were asked to rank key constraints to livestock production, separated by species. The aim of the study was to provide a comprehensive picture of key challenges in livestock production (including but not limited to disease), as perceived by smallholders and local veterinarians respectively, and how the two groups talked about and ranked livestock diseases.

Results indicate that disease is not separated out from - but rather seen as one of many constraints in livestock production by smallholders. Furthermore, smallholders ranked lack of access to veterinary services, jealousy and theft as equivalent or even more damaging to livestock keeping than disease. They also rarely talked about specific diseases, but rather referred to symptoms. Veterinarians tended to talk about specific diseases using formal scientific names, and ranked animal disease as the most critical factor hindering livestock production. They also repeatedly stressed smallholders' lack of correct knowledge in livestock production as a key limiting factor. These examples point to the tendency among local veterinarians to only discuss limited parts of the many challenges smallholders face in livestock production. We suggest that a more holistic view and more general poverty reducing efforts might have more significant positive effect on livestock production by making it possible for smallholders to invest in general preventive measures.

**Session 39. Pandemics and Poverty: Health Research Prioritization, Wildlife transmission, Preparedness (SDG 3, 1)**

2021-06-16

10:45 - 12:15

Session 39. Pandemics and Poverty: Health Research Prioritization, Wildlife transmission, Preparedness (SDG 3, 1)

### **S39.1 - Pandemics and Poverty: Health Research Prioritization and Preparedness**

#### 1. Sessions

**Olivia Wesula Lwande**<sup>1</sup>

Magnus Evander<sup>1</sup>, Isabel Blanco Penedo<sup>2</sup>, Bernard Agwanda<sup>3</sup>, Steven Ger Nyanjom<sup>4</sup>

<sup>1</sup> Umeå University

<sup>2</sup> Swedish University of Agricultural Sciences

<sup>3</sup> National Museums of Kenya

<sup>4</sup> Jomo Kenyatta University of Agriculture and Technology

Proposal for session **Session title:**

Pandemics and Poverty: Health Research Prioritization and Preparedness

#### **Session description:**

The frequency in which new pathogens emerge and cause pandemics is likely to increase in the coming decades. Factors causing this phenomenon are well known unrelated conditions, that in recent years have been rapidly coalescing and hastening pandemics. Enhanced contact between humans, livestock and wildlife coupled by globally established vectors nurture the emergence of new pathogens, promotes spill-over events and escalates potentially controllable outbreaks to the stature of a pandemic. Pandemics are known to disrupt socio-economic infrastructure and when the frequency of occurrence is high, it leads to a serious breakdown of health systems leading to economic devastation. Therefore, pandemics and poverty are the siamese twins of our generation. The recent Coronavirus outbreak in China caused global aftershock ripples in every sphere of life, demonstrating how our health, economy, and social architecture is globally interconnected. Many studies have predicted pandemics and described hotspots for emergence of new pathogens, yet it was apparent there was lack of preparedness for COVID-19. This panel will discuss and highlight present and future research strategies connected to developing countries, where the effect of a pandemic would be severe. For example, the panelists should rigorously discuss and suggest fields of prioritization for disease research strategy, policy, funding and capacity building. Some of the areas that need discussion and prioritization include understanding transmission pathways, human behavior, diagnostic development, risk analysis, societal effects, pathogen discoveries and surveillance, as well as commensurate training to foster international collaborations.

#### **Session contributors:**

**Magnus Evander, Sweden.** Prof Evander, head of Virology, Umeå University, is managing multidisciplinary research programs on emerging virus transmission, pathogenesis, diagnostics and countermeasures. His projects are in collaboration with developing countries in Africa and focus on building sustainable research and capacity building. He will present Rift Valley fever virus transmission – an interplay between human behavior, mosquitoes, livestock and ecology.

**Isabel Blanco Penedo, Sweden** Dr. Penedo, a Veterinary Epidemiologist Researcher at the Swedish University of Agricultural Sciences. She focuses on animal health and welfare, farm systems, organic farming, and climatic change impact on livestock, to improve farm sustainability. She is a

permanent member of the EU Expert Group on Organic Production (EGTOP). She will give an overview of sustainable farming under a global changing world with focus on the animal.

**Bernard Agwanda, Kenya.** He is a Research Scientist and Curator of Mammals at the National Museums of Kenya. He is a member of the IUCN Species Special Commission of Chiroptera and the Chair of the Mammal Committee of East African Natural history Society, and the National Presidential Taskforce on Ebola and other emerging zoonotic pathogens. He is investigating ecology and viruses in migratory fruit bats in East Africa, epidemiology of MERS-CoV in bats, camels, humans. Mr. Agwanda will present on the coronavirus/paramyxovirus among long distance flying fruit bats in Africa.

**Steven Ger Nyanjom, Kenya.** Dr. Nyanjom is a Senior lecturer at Jomo Kenyatta University of Agriculture and Technology, Kenya. He is involved in research projects characterizing olfactory proteins in tsetse flies, the main vectors of African trypanosomiasis. He is now adapting the One Health approach to combat antimicrobial resistance, and creating awareness among affected population. Dr. Nyanjom will present on adopting One Health Approach in Kenya to Tackle Antimicrobial Resistance

**Session format:**

A panel of five experts mentioned above will be invited to give short presentations (10 minutes each). This will be followed by an interactive discussion and debate (40 minutes).

**Chair/moderator:**

**Olivia Wesula Lwande, Sweden.** Dr. Lwande is a Docent and Researcher at Virology, Umeå University. Dr. Lwande is qualified Arbovirologist. Dr. Lwande's research is geared towards alleviating arbovirus diseases affecting people in less developed and developing countries which have a potential for pandemics.

**Session 40. (Part one) Post-war transitions, peacebuilding and development  
(SDG 16)**

2021-06-16

10:45 - 12:15

Session 40. (Part one) Post-war transitions, peacebuilding and development (SDG 16)



## S40.1 - Post-war transitions, peacebuilding and development

### 1. Sessions

#### **Elisabeth Olivius<sup>1</sup>**

Bart Klem<sup>2</sup>, Malin Åkebo<sup>1</sup>, Sunil Bastian<sup>1</sup>, Georg Frerks<sup>3</sup>, Lars Waldorf<sup>4</sup>, Nilanjana Premaratna<sup>1</sup>, Jenny Hedström<sup>5</sup>, Claire Smith<sup>6</sup>, Veronica Strandh<sup>1</sup>, Benni Yuzrisa<sup>7</sup>, Chris Van der Borgh<sup>3</sup>, Magda Cardenas<sup>1</sup>, Joakim Öjendal<sup>2</sup>

<sup>1</sup> Umeå University

<sup>2</sup> Gothenburg University

<sup>3</sup> Utrecht University

<sup>4</sup> University of Essex

<sup>5</sup> Örebro University

<sup>6</sup> York University

<sup>7</sup> Tenggara Strategics, Indonesia

#### **Session description:**

Armed conflict is a major obstacle to global sustainable development. Peacebuilding is not only central to Sustainable Development Goal 16 (peace, justice, institutions) but in fact connects to all goals. Both the scholarship and policy-practice with regard to peacebuilding are at an impasse, however. Interventions have been accused of imposing western hegemony, neglecting local views and experiences, and therefore failing to construct lasting and legitimate peace. Research paradigms continue to struggle with old dilemmas: the conceptualization of peace, questions of legitimacy, the tendency to overestimate the efficiency of international interventions and the myriad of ways in which conflict and violence rear their head after peace is declared. Building on recent critical and feminist peace scholarship, our central point of departure is to work with the term post-war transition (rather than war-to-peace transition). Much like the term post-colonialism, the prefix post in post-war transition does not mark a definitive after, but a continued struggle against the enduring legacies of what preceded. This is manifest in political structures (often entangled with violence), in social realities (the bearing of the conflict in articulations of identity) and our very foundations of knowledge (idioms of peace, euphemisms of war, contested historiography, material culture). It is only through recognizing and engaging with these multifarious struggles, we posit, that post-war transition can be understood. This it opens new perspectives on post-war struggles and our (however defined) role in them. The first session is focused on Sri Lanka ten years after the separatist war; the second session comprises a rich variety of post-war contexts in Asia and Latin America.

#### **Session contributors:**

The following contributors and paper topics are part the first of the two panel sessions:

1. Bart Klem, Gothenburg University, Sweden: *The problem of peace: Post-war transition, accidents of history and continued struggle*
2. Malin Åkebo, Umeå University & Sunil Bastian, Sri Lanka: *Beyond Liberal Peace in Sri Lanka: Victory, Politics, and State Formation*

3. Georg Frerks, Utrecht University, the Netherlands: *Peace as war by other means: Sri Lanka ten years after the war.*
4. Lars Waldorf, Essex University, UK: *Dancing Difference and Choreographing Inclusion: Corporeal Peacebuilding in Post-War Sri Lanka*
5. Nilanjana Premaratna, Umeå University, Sweden: *Interrogating peace and development through documentary film*

Together these contributions cover a broad range of post-war dynamics in Sri Lanka, including the unintended legacies of past peace interventions (Klem), state formation (Åkebo and Bastian), critique of prevalent definitions and approaches in post-war peacebuilding (Frerks), and the arts as an arena for peacebuilding and embodied experiences of peace (Waldorf and Premaratna). The following contributors and paper topics are part of the second of the two panel sessions:

1. Elisabeth Olivius, Umeå University, Sweden & Jenny Hedström, Örebro University, Sweden: *Their peace is not for us: Discrepancies between state peacebuilding and local conceptions of peace in Myanmar*
2. Claire Smith, York University, UK: *Illiberal peacebuilding: order and democracy in Myanmar*
3. Veronica Strandh, Umeå University, Sweden & Benni Yuzrisa, Tenggara, Indonesia: *War widows' experiences and aspirations of peace in Aceh, Indonesia*
4. Chris Van der Borgh, Utrecht University, the Netherlands: *War and peace as strategic action: The case of El Salvador*
5. Magda Cardenas, Umeå University: *Navigating gender equality and ethnic minority rights in the Kachin conflict*

Covering cases in Asia and Latin America, this session highlight the multiple ways in which legacies of war shape post-war contexts. The session explores competing conceptions of what peace is and should be (Olivius and Hedström), the emergence of illiberal peacebuilding (Smith), post-war gang violence (Van der Bergh), and the post-war experiences of war widows (Strandh and Yuzrisa) and women activists (Cardenas).

**Session format:**

- Double panel session, 2\* 90 minutes
- Each paper presenter will have a maximum of 10 minutes to present their paper. After each presentation, the next presenter will offer some reflections on the previous contribution before moving on to his or her own presentation. This breaks up the presentations and creates more dynamic sessions.
- The sessions are moderated by Professor Joakim Öjendal, Gothenburg University, who will keep time during presentations and provide a few overarching reflections on the session theme after all five presentations in each session. After this, about 30 minutes will remain for Q&A with the audience and responses from the presenters.

**Session 41. Regulating and contesting political rule in Africa: elections and transitions (SDG 16)**

2021-06-16

10:45 - 12:15

Session 41. Regulating and contesting political rule in Africa: elections and transitions (SDG 16)

## **S41.1 - Regulating and contesting political rule in Africa: elections and transitions**

### 1. Sessions

**Anders Sjögren**<sup>1</sup>

Camille Pellerin<sup>1</sup>, Kristine Höglund<sup>2</sup>, Yonas Ashine Demisse<sup>3</sup>

<sup>1</sup> Department of Government, Uppsala University Sweden

<sup>2</sup> Department of Peace and Conflict Research, Uppsala University, Sweden

<sup>3</sup> College of Social Sciences, Addis Abeba University, Ethiopia

Session description: The SDGs have identified Peace, Justice and Strong Institutions (Goal 16) as key for achieving sustainable development. Apart from constituting a goal in itself, the presence of capable and democratic state institutions that can ensure peace and justice is also crucial for reaching most of the other SDGs, hence constituting a cross cutting issue. The proposed session examines the regulation and contestation of political rule in Africa and includes contributions that focus on electoral management as well as legal and administrative reforms. By exploring these different dimensions of political rule and political change in Africa, the session is highly significant for Sustainable Development Goal 16.

Levels of development are strongly connected to political rule and the extent to which the exercise of state power is characterised by accountability and capability. On the African continent, events during recent years point in different directions. Some autocratic governments are digging in, resisting calls for democratic reforms, while other countries have embarked on political reform processes towards more democratic rule.

In most countries, elections constitute the mechanism for access to state power. Elections however differ widely in character and quality and range from free, fair and peaceful to manipulated, contested and marked by violence. In addition to elections, political transformation processes towards more democratic rule are also shaped by the capacity and willingness of political leaders and bureaucrats, to promote and institutionalise political change through legislative and administrative reform.

Session contributors: To guarantee diversity and equality in participation, the following contributions were chosen for the panel:

**Yonas Ashine Demisse, College of Social Sciences, Addis Abeba University, Ethiopia**

*Political transition and politics of transformation in Ethiopia: an inquiry on politics of development in Ethiopia.*

The paper analyses how in Ethiopia, the introduction of SDGs now meets with political liberalization, where the emergence of a new concept “prosperity” (*belts’gena*) is seemingly replacing the concept of development (*lemat*). Taking its point of departure in the country’s politics of transition, the study explores how the emergence of *belts’gena* as a new concept articulates new politics of transformation.

**Kristine Höglund (presenter) and Johan Brosché, Department of Peace and Conflict Research, Uppsala University, Sweden**

*Zambia at a Cross-Road? Electoral Violence and the Kaunda Legacy*

Free and fair multi-party elections constitute a defining characteristic of democracy. Yet, in many countries, violence impede upon the electoral process in a manner that defies the very notion of democratic practice. This paper investigates the absence and presence of electoral violence across elections in Zambia's multiparty era.

**Camille Pellerin, Department of Government, Uppsala University, Sweden**

*Bureaucratic continuity and political reform in Ethiopia.*

Ethiopia has been making rapid progress on the SDGs, including SDG 16. However, despite far-reaching legal reforms in 2018/19, the reality of political transformation in Ethiopia has been lagging behind. To understand the patterns of legal change and political continuity, the article explores the role of bureaucrats in the institutionalisation of democratic political reforms.

**Anders Sjögren, Department of Government, Uppsala University, Sweden**

*Backdoor exit, weak voice and encouraged loyalty. Civil society and electoral reforms under hegemonic electoral authoritarianism in Uganda.*

Elections in Uganda have been contested and disputed by opposition parties and election observers. How do civil society organisations relate to autocratic electoral regulation – when and why do they oppose or support it?

The contributions are based on recent fieldwork from ongoing research projects. Together they address a range of significant dimensions and aspects of political rule: autocratic elections and demands for democratisation, electoral violence, and political transitions and the state, with empirical illustrations from across the continent.

How the session will be run:

This panel session will address the four papers one by one through a brief presentation followed by comments from a discussant (together about fifteen minutes). After each presentation and comments there will be time for questions and comments from the floor. The session will conclude with a discussion of common themes, with time allocated to paper presenters as well as audience contributions. There are two assigned discussants for the panel: Professor Fredrik Söderbaum, University of Gothenburg and Blen Sahilu, College of Social Sciences, Yellow Movement, Addis Ababa University. The session will be chaired by Anders Sjögren and Camille Pellerin.

**Session 42. The Role of Media and Communication when Advancing  
Sustainable Transformations (SDG XX)**

2021-06-16

10:45 - 12:15

Session 42. The Role of Media and Communication when Advancing Sustainable Transformations  
(SDG XX)

## **S42.1 - The Role of Media and Communication when Advancing Sustainable Transformations**

### 1. Sessions

**Annika Egan Sjölander**

#### **Purpose, topics and rationale**

The purpose of this roundtable is to gather a diverse group of media and communication scholars, active in research for development, to discuss what critical role(s) we envision for media and communication when it comes to transforming our societies? What is it that we really mean when we stress the importance of media in society and communication practices at large? And why are they so crucial to understand (better) when aiming for sustainable development? The answers to these questions are of course many and highly context-dependent, and even if fundamental for our work, way to often taken for granted and therefore not discussed at all. This forms the rationale for this round-table which aims to not only highlight the common ground that there is, but also to examine where perspectives diverge or positions contradict each other and need to be reviewed. And further, the possible consequences of it all, not least in the light of achieving the SDGs. To know about these complexities will be of importance, not least when interacting with colleagues from other disciplines and stakeholders or practitioners from the development studies field. This type of critical self-reflection among media and communication scholars is good to undertake when engaging in dialogues with others. And one could easily argue that in a field such as development studies, an area formed as a response to global inequalities and long-standing asymmetries of power, it is even key to do so since reproduction of dominance needs to be problematised and resisted.

#### **Session contributors**

Prof **Thomas Tufte**, Director of the Institute for Media and Creative Industries, Loughborough University, UK, an internationally leading scholar in the field of communication for social change (also *keynote*).

Prof **Victoria Wibeck**, Centre for Climate Science and Policy Research, Linköping University, Sweden and co-author w Linnér of *Sustainability Transformations: Agents and Drivers across Societies* (2019, Cambridge University Press) (also *keynote*).

Assoc. Prof **Maria Nilsson** OR Phd-student **Camilla Andersson**, Dept of Epidemiology and Global Health, Umeå University, Sweden who has collaborated in research about climate change communication in Europe and the problem of dengue fever in Indonesia.

Assoc. Prof **Florencia Enghel**, Dept of Languages and Communication, Jönköping University, Sweden and co-editor w. Noske-Turner of the 2018 Routledge volume: *Communication in international development: doing good or looking good?*.

Phd-student **Camila Emboava Lopes**, Dept of Culture and Media Studies, Umeå University, Sweden researching the use and meaning of digital media within Indigenous Peoples' movements in contemporary Brazil.

Dr **Eva Ekstrand**, University of Gävle, Sweden initiator of the biannual international environmental communication conference *Consuming the Environment* and an affiliated researcher at The Centre for Communication, Media and Society, University of KwaZulu-Natal in South Africa.

Prof **Lauren Dyall**, is Academic Leader of Research at the School of Applied Human Sciences and at the Centre for Communication, Media and Society, University of KwaZulu-Natal in South Africa and specializes in participatory communication and critical indigenous qualitative methodologies.

Dr **Kerstin Engström**, Dept of Culture and Media Studies, Umeå University, Sweden is a Senior Lecturer in Media and Communication/Journalism that also has practical experience of aid work/developmental projects in Bolivia and Rwanda (together with the Swedish Fojo Media Institute). The latest work concerns gender-based violence in seven African countries.

Assoc Prof **Annika Egan Sjölander**, Dept of Culture and Media Studies, Umeå University, Sweden will moderate this roundtable. “Communication *for* sustainable societies in the Anthropocene” summarised her research about the role of media and communication when it comes to the handling of pressing environmental problems such as climate change, nuclear waste, and more recently, water scarcity in countries experiencing high water stress.

#### **Session format, chair and interaction**

The roundtable will be formed by a group of senior and junior scholars that will be given approx. five minutes each at the start to share some of their views (40-60 min). The two keynote speakers will be able to connect back to their previous presentations. The following discussion around the round-table (15-35 min) will be moderated by Annika Egan Sjölander, who also will chair the final phase of the dialogue (15 min) where some other participants (the audience) will have a chance to raise questions and give their brief input on the topics discussed.



**Session 43. Dealing with inherent inequalities. The promises and tensions of partnership, ownership and participation in development cooperation (SDG 17)**

2021-06-16

10:45 - 12:15

Session 43. Dealing with inherent inequalities. The promises and tensions of partnership, ownership and participation in development cooperation (SDG 17)

## **S15.1 - Dealing with inherent inequality. The promises and tensions of partnership, ownership and participation in development cooperation**

1. Sessions

**Malin Hasselskog**<sup>1</sup>

Joakim Öjendal<sup>1</sup>, Fredrik Söderbaum<sup>1</sup>, Maria Eriksson Baaz<sup>2</sup>

<sup>1</sup> School of Global Studies, University of Gothenburg

<sup>2</sup> Department of Government, Uppsala University

**Panel, convened by Professor Joakim Öjendal and Associate Professor Malin Hasselskog, the School of Global Studies, University of Gothenburg**

*Dealing with inherent inequality. The promises and tensions of partnership, ownership and participation in development cooperation*

### **Session description**

The inequalities involved in international development cooperation remain an issue of concern. Persisting ambitions of establishing more equal relations, based on shared interests and mutual respect, are illustrated by recurring calls for *partnership*, for example in the Pearson Report from 1969 and – almost 50 years later – in the 2030 Agenda, where a revitalised global partnership is denoted as a means of implementation of all SDGs and further elaborated in SDG 17.

Related, though different, is the call for *national ownership* with its emphasis on respect for every country's – and particularly developing countries' – policy space, which is also emphasised in the 2030 Agenda. However, while the ideal is for a country's development policies and priorities to be determined domestically, aid recipient states' policy space is constrained by – more or less explicit, more or less legitimate – donor preferences and interests, as well as by global goals and agendas.

Another long-term ideal aimed at coming to terms with inequalities in development cooperation is *local participation*. Initially referring to people's active involvement and influence on externally funded development activities in their community, the term has also come to be used for consultations with representatives of different parts of society, as part of closely regulated policy processes in aid recipient countries.

How can we, currently and into the future, understand and make use of these concepts, and of the underlying ambitions of making the aid relationship more equal? Is it at all possible to establish anything like a genuine partnership? In this panel, we discuss potential contributions and

combinations, but also confusions and contradictions, of common relationship concepts in development thinking and practices.

### **Session contributors**

The panel consists of highly qualified scholars with long-term experience of research and debate on development cooperation relationships.

#### *Conveners and chairs:*

*Professor Joakim Öjendal and Associate Professor Malin Hasselskog, School of Global Studies, University of Gothenburg.*

#### *Discussant:*

*Professor Maria Eriksson Baaz, Department of Government, Uppsala University. Professor Eriksson Baaz will contribute due to her outstanding expertise on relationships within international development cooperation.*

#### *Paper presenters:*

*Professor Fredrik Söderbaum, School of Global Studies, University of Gothenburg, will present findings from a joint research study, carried out together with Dr Sören Stapel, University of Freiburg, entitled ‘The “emptiness” of ownership: Comparing Swedish and British regional foreign aid to Africa’. Professor Söderbaum will be drawing on expertise, based on decades of analysing asymmetrical donor-recipient relationships in European and Swedish development cooperation.*

*Associate Professor Malin Hasselskog will make a presentation on how current ideas and practices of national ownership and local participation can be understood in the context of decentralisation and NGO policies and practices in Rwanda. Associate Professor Hasselskog will be drawing on profound experience from within, as well as research on, international development cooperation.*

*Professor Joakim Öjendal* will present a paper on the status of national ownership and local participation in Cambodia in the three controversial and much highlighted areas of community forestry, NGO-regulation and decentralisation reform. Professor Öjendal will be drawing on two decades of qualitative fieldwork of an ethnographic nature in these and related fields.

### **How the session will be run**

1. Introduction of the panel and the theme by the chairs (5 minutes).
2. Paper presentations (40 minutes).
3. Reflections by the discussant, linking the contributions to each other and to the theme (10 minutes).
4. Questions and comments by the audience, who will be encouraged to bring up issues related to individual papers as well as to the theme. Papers will be circulated beforehand among the panel contributors and – if the conference format allows – to conference participants (20 minutes).
5. Round of answers/comments by the presenters (8 minutes).
6. Reflection by the discussant (5 minutes).
7. Summing up by the chairs (2 minutes).

1. Welcome to the panel (Malin; 2 minutes)
2. Introduction of a research project on the relation between national ownership and local participation (Joakim; 5 minutes)
3. Introduction of the theme of the panel (Malin; 3 minutes)
4. Presentation 1 (Fredrik; 10 minutes)
5. Presentation 2 (Malin; 10 minutes)
6. Presentation 3 (Joakim; 10 minutes)
7. Reflections by discussant (Maria; 15 minutes)
8. Questions and comments by the audience (20 minutes)
9. Round of answers/comments by the presenters (10 minutes)
10. Reflections by discussant (Maria; 3 minutes)
11. Summing up (Joakim; 3 minutes)

= 86 minutes

**Session 44. Sexual and reproductive health: in times of transitions (SDG 3, 5)**

2021-06-16

14:15 - 15:45

Session 44. Sexual and reproductive health: in times of transitions (SDG 3, 5)

## **S44.1 - Evaluation of new HIV/AIDS policy implementation in Uganda: Comparison between public and private health centers**

2. Individual abstracts

**Stephen Joloba**

David Kasibante<sup>1,2</sup>, Daniel Ssentamu<sup>3</sup>, Isaac Ddumba<sup>4,5</sup>

<sup>1</sup> Community Health Access Foundation

<sup>2</sup> Sikyomu PLH organisation

<sup>3</sup> Kalungu District Local Government

<sup>4</sup> African Research Center 4 Ageing & Dementia

<sup>5</sup> Clinical and Epidemiological Unit; Makerere College of Health Science

### **Background**

In 2015, Uganda adopted the World Health Organization ‘HIV testing and treat’ policy and rolled it out in 2016. Early diagnosis and treatment of HIV infected clients is essential in averting HIV-related morbidity and mortality. While the adaptation of these policies is essential to mitigate the escalating number of new HIV infections, its implementation in the health facilities is hardly understood.

**Methods** A cross section design with mixed method data collection tools were employed. We assessed the implementation of the new “test and treat policy” in four high volume public and private health facilities in Uganda. The 2016 ministry of health HIV policy document were reviewed and pre-determined indices were extracted in relation to the content as per HIV service provision policy guidelines. A structural questionnaire was used to assess the facility based policy implementation and was administered to ART In-charges of each facility. Implementation was classified as high, median and low and stratified by ownership of the facility (Public or Private). The semi-structured interviews were conducted with key informants (policy makers, district health team members, Health facility in-charges and HIV/AIDS implementing partners), to identify factors that influenced HIV test and treat policy implementation. Data was analyzed using thematic content analysis.

**Results** Most of the test and treat policy guidelines were implemented in both Public and Private health care facilities (Free HIV testing, Option B+, Free highly active Antiretroviral Therapy (HAART) and Post exposure prophylaxis). Both had a notable implementation gap relating to retention in care but were more common among the private health care setting. Public health facilities highly implemented policies related to care and treatment than private and performed better on quality of care indicators such as ; availability of drugs. Factors that facilitated the implementation included; availability of lead HIV implementation partner, content of the policy guideline, district partner coordination structures, availability of scientific evidence and strong data management structures. Barriers in implementation of policy in private health facilities included; weak coordination, lack of logistics and commodities, poor supervision, few health workers orientated with new policy guidelines , health information system and poor referral systems that threatens the successful implementation of this policy

**Conclusions** Most HIV policies were highly implemented in the public health facilities; however, gaps in implementation coverage prevail and exist in the private setting. Strategies to ensure high implementation of HIV policies in private setting against adaption of any new policy.



## **S44.2 - Good girls or bad girls? Constructing Adolescents Sexuality with Adolescents in Rural Zambia using Photo Elicitations**

2. Individual abstracts

**Chama Mulubwa**<sup>1</sup>

Anna-Karin Hurtig<sup>2</sup>, Charles Michelo<sup>1</sup>, Joseph Mumba Zulu<sup>1</sup>, Isabel Goicolea<sup>2</sup>

<sup>1</sup> University of Zambia, School of Public Health, Lusaka, Zambia

<sup>2</sup> Department of Epidemiology and Global Health, Umeå University, 90185, SE, Sweden

### **Introduction**

This study draws on photo-elicitation interviews with adolescents who participated in a sexual reproductive health and rights (SRHR) intervention that aimed to reduce adolescents' pregnancies and early marriages in rural Zambia. We seek to analyse discourses on adolescents' sexuality and sexual health and how these discourses can affect (or not) the adoption of SRHR interventions. Further, we analyse the consequences of these discourses for adolescents to exercise of their SRHR.

### **Methods**

Twenty-five school going adolescents aged 16 to 18 years old who participated in a SRHR intervention were recruited. Data was collected using participant-driven photo elicitations in combination with both individual and group interviews. Textual and visual data were analysed using discourse analysis specifically looking for interpretative repertoires.

### **Results**

In this study, three interpretative repertoires on how adolescents constructed sexuality and consequences of these repertoires were developed. The first repertoire identifies was "sex is dangerous, handle with care" which reflected on how adolescents constructed themselves as "immature individuals", not qualified to engage in any form of sexual activities. As a consequence, SRHR information related to condom and contraceptive use was regarded as information to be used by adults. For adolescents, abstinence was portrayed as "gold standard". The second repertoire was "gendered disrespectful and respectful behaviour" - engaging in sex was constructed as being disrespectful towards parents/guardian especially for girls. Girls respectful behaviour was defined as not engaging in sexual intercourse, not getting pregnant, dressing 'appropriately' and staying at home when not at school while there was no particular definition for disrespectful/respectful behaviour targeting boys. This resulted in placing the responsibility of avoiding the negative consequences of sex entirely on girls. The third repertoire - "embroidering knowledge on sexuality (if you have knowledge, could you do differently?)" portrayed knowledge as essential for preventing pregnancies and early marriages while at the same time recognising poverty and lack of autonomy as some of the facilitator's pregnancies and early marriages.

### **Conclusion**

The dominant discourses available to adolescents in rural Zambia can shape how adolescents adopt (or not) SRHR intervention and consequently the seeking of SRHR services. The position of lacking (and having enough) knowledge, perceived and self-stigma coupled with the repertoire of "immaturity" can exacerbate access to condom and contraceptives and consequently result in adolescents' pregnancies.





### **S44.3 - Implications of Kenya Becoming a Lower Middle-Income Country: An Analysis on the Big Four Health Donors.**

2. Individual abstracts

**Jackson Ndegwa**<sup>1</sup>

Sheelah Eddyne Matirani Ambani<sup>2</sup>

<sup>1</sup> Kenya AIDS NGO's Consortium

<sup>2</sup> Laikipia University Kenya

#### **Introduction**

Kenya's Gross Domestic Product (GDP) was rebased in 2014. The country was re-classified as a lower-middle income country (LMIC) with implications on the sustainability of the HIV and AIDS, Tuberculosis and Malaria response, Reproductive Maternal Neonatal Child and Adolescent Health and Immunization interventions, all which are heavily donor-funded.

However, the financial structures that have supported low-income countries' health programs are winding down financial and programmatic support, a process known as transition. Transition has significant implications for many different aspects of health SDG in Kenya.

This study sort to come up with recommendations that can cushion Kenya against any negative impacts to health as the country transitions to LMIC status.

#### **Methods**

The study analysis primarily relied on desk research and interviews with key informants in Kenya and at donor agencies. The analysis focuses on the policies of four major organizations: PEPFAR, the Global Fund to Fight AIDS, Tuberculosis and Malaria, Gavi, the Vaccine Alliance and the World Bank. In-country interviews and consultations with members from civil society organizations, United Nations, the Kenyan National Treasury and Ministry of Health supplemented the desk research.

#### **Results**

While rebasing has implications on the financing of health, becoming a LMIC alone has not put Kenya at significant risk of losing donor support in short term. However, there will be changes in donor support for Kenya's Health response due in the medium term. An eventual drop in donor financing is inevitable as Kenya's GDP continues to grow as projected.

Although few immediate changes to donor financing are expected, there may be direct implications for the assumptions underlying the Health funding and efficiency gains estimates, particularly where estimates were indexed to revenue growth or GDP share. Revising these estimates will be an important next step for the Kenya, since doing so helps inform the Ministry of Health of its overall funding gap.

#### **Conclusions**

Kenya's medium-term GDP growth and increasing per capita income will put pressure on the country to mobilize domestic resources for health. Donors support for Health will eventually end as Kenya grows wealthier, putting Kenya's hard-won gains in health over the last decade at significant risk.

A concerted effort by the government to plan for a re-balancing from domestic sources is vital. Increasing domestic resources for health, to adequate levels and in a sustainable manner must be prioritized and one the country begins to address presently.

#### **S44.4 - Effect of COVID-19 pandemic response on intrapartum care, stillbirth and neonatal mortality outcomes in Nepal: prospective cohort observational study**

##### 2. Individual abstracts

**Ashish KC**<sup>1,2</sup>

Rejina Gurung<sup>1,3</sup>, Mary V Kinney<sup>4</sup>, Prajwal Paudel<sup>5</sup>, Avinash K Sunny<sup>3</sup>, Omkar Basnet<sup>3</sup>, Pratiksha Bhattarai<sup>3</sup>, Kalpana Subedi<sup>5</sup>, Mahendra Prasad Shrestha<sup>5</sup>, Md Moinuddin<sup>6</sup>, Joy E Lawn<sup>7</sup>, Mats Målqvist<sup>1</sup>

<sup>1</sup> Department of Women's and Children's Health

<sup>2</sup> Society of Public Health Physicians Nepal

<sup>3</sup> Golden Community, Nepal

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<sup>5</sup> Ministry of Health and Population, Nepal

<sup>6</sup> Institute of Child Health, University College London, United Kingdom

<sup>7</sup> Maternal, Adolescent, Reproductive & Child Health (MARCH), London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT, UK

**Introduction** The COVID-19 pandemic response is affecting maternal and neonatal health services all over the world. A modelling exercise using the Lives Saved Tool estimated an excess of 56 700 maternal and 1 157 000 child deaths assuming up to 45% coverage reductions in 118 countries for 6 months during the COVID-19 pandemic outbreak. This study assessed outcomes (institutional stillbirth and neonatal mortality rate), institutional birth coverage, and quality of intrapartum care before and during the national COVID-19 lockdown (LD) in Nepal.

**Methods** In this prospective observational study, we collected participant-level data for pregnant women enrolled in the SUSTAIN and REFINE studies between Jan 1 and May 30, 2020, from nine hospitals in Nepal. This period included 12·5 weeks before the national lockdown and 9·5 weeks during the lockdown. Women were eligible for inclusion if they had a gestational age of 22 weeks or more, a fetal heart sound at time of admission, and consented to inclusion. Women who had multiple births and their babies were excluded. We collected information on demographic and obstetric characteristics via extraction from case notes and health worker performance via direct observation by independent clinical researchers. We used regression analyses to assess changes in the number of institutional births, quality of care, and mortality before lockdown versus during lockdown.

**Results** Of 22 907 eligible women, 21 763 women were enrolled and 20 354 gave birth, and health worker performance was recorded for 10 543 births. From the beginning to the end of the study period, the mean weekly number of births decreased from 1261·1 births (SE 66·1) before lockdown to 651·4 births (49·9) during lockdown—a reduction of 52·4%. The institutional stillbirth rate increased from 14 per 1000 total births before lockdown to 21 per 1000 total births during lockdown ( $p=0\cdot0002$ ), and institutional neonatal mortality increased from 13 per 1000 livebirths to 40 per 1000 livebirths ( $p=0\cdot0022$ ). In terms of quality of care, intrapartum fetal heart rate monitoring decreased by 13·4% (−15·4 to −11·3;  $p<0\cdot0001$ ), and breastfeeding within 1 h of birth decreased by 3·5% (−4·6 to −2·6;  $p=0\cdot0032$ ). The immediate newborn care practice of placing the baby skin-to-skin with their mother increased by 13·2% (12·1 to 14·5;  $p<0\cdot0001$ ), and health workers' hand hygiene practices during childbirth increased by 12·9% (11·8 to 13·9) during lockdown ( $p<0\cdot0001$ ).

**Conclusion** Institutional childbirth reduced by more than half during lockdown, with increases in institutional stillbirth rate and neonatal mortality, and decreases in quality of care. Some behaviours improved, notably hand hygiene and keeping the baby skin-to-skin with their mother. An urgent need exists to protect access to high quality intrapartum care and prevent excess deaths for the most vulnerable health system users during this pandemic period. These outcomes are concerning in a fragile health system and raise questions on policies regarding strict lockdowns in low-income and middle-income countries during the COVID-19 outbreak.

## **S44.5 - Women's perception about accessibility of safe abortion care services at Selected public institutions in Addis Ababa, Ethiopia.**

### 2. Individual abstracts

**Negalign Getahun Dinigde<sup>1</sup>**

Endalew Gemechu Sendo<sup>2</sup>, Fekadu Aga<sup>3</sup>, Debela Gela<sup>4</sup>, Jembere Tesfaye Deressa<sup>5</sup>

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**Title:** Women's perception about the accessibility of safe abortion care services at Selected public institutions in Addis Ababa, Ethiopia.

### **ABSTRACT**

**Background:** Ethiopia ratified its abortion law in 2005, primarily to reduce the incidence of unsafe abortion and the availability of safe abortion services has increased. However, service availability has not led to a significant reduction in unsafe abortion.

**Objective:** The aim of this study was to assess women's perception about accessibility of safe abortion care services at selected public institutions in Addis Ababa, Ethiopia.

**Method:** Institution-based cross-sectional study was conducted among 432 women of reproductive age who work in non-health related public institutions. A structured questionnaire was used to collect the data. Data were entered into Epi-data and cleaned and exported to SPSS version 24.0 for data analysis. Data analysis involved descriptive statistics, including frequency, percentage, mean and standard deviations. Bivariate analysis using correlation coefficients, independent-sample t-test, and one-way analysis of variance (ANOVA) was conducted to assess factors associated with perception about accessibility of safe abortion care. Statistical significance was set at 5%. Multiple linear regression analysis was used to identify variables independently predicting perception about accessibility of safe abortion care. Multi-categorical independent variables were dummy coded before entering into the models. To avoid issues associated with multicollinearity, we have checked to see if (a) the condition index was < 3, (b) that the variance inflation factors (VIF) were < 5, and (c) tolerance was > 0.2.

**Results:** In this study, more than half (60.2%) of the participants reported that they had pregnancy at least once; among which majority were primigravid and have given birth to a baby once, 39.2% and 42.3% respectively. Seventy-eight respondents (18.1%) had a history of previous miscarriage, among these the greater number (74.4%) has happened due to spontaneous abortion. Among the

respondents studied, 283 (65.5%) of them have heard of abortion care and media was the major source of information. Closely half of (46.2%) the females who had miscarriage history were treated at governmental health institutions; followed by private clinics (35.9%) and traditional methods (6.4%). Whereas, 11.5% of them didn't get any abortion care service. There was a significant difference in mean scores of participants faced post-abortion complications and treated at the traditional healers, and particularly the respondents attended traditional healers make the strongest unique contribution to explaining the perception score.

**Conclusion:** Over the past two decades, the safe abortion services have advanced and expanded increasingly in Ethiopia, including the modification of legal barriers to accessing abortion services, in order to reduce the magnitude of unsafe abortion complications and deaths. However, this study indicated that a significant number of women still unheard about the accessibility of safe abortion care and attending the traditional and risky procedure of care. There is an urgent need for the government and other stakeholders to provide more awareness of the accessibility and advantage of safe abortion services in the community.

## **S44.6 - The relevance of the RISE gender component on girls notions of gender norms and decision making processes**

### 2. Individual abstracts

**Fatuma Masumba<sup>1</sup>**

Chama Mulubwa<sup>1</sup>, Joseph Zulu<sup>1</sup>, Chavula Malizgani<sup>1</sup>

<sup>1</sup> University of Zambia Ridgeway Campus

The purpose of the presentation is to address negative gender norms and adolescent sexual reproductive health and how it affects decision making processes. The presentation will focus on the background, RISE intervention, methods, results and discussion and conclusion sections. These are important sections which will give a clear understanding of program design related to sexual reproductive health and gender in adolescent health curricula in order to provide smooth transition into adulthood.

The session contributors include Chama Mulubwa, Kunda Chilambe all from Zambia. These have been selected because they are actively engaged in adolescent health and health promotion in Zambia.

The session will be run beginning with introduction, background of the RISE intervention, methods, results, discussion, conclusion and lastly recommendations. The moderator will be Chama Mulubwa.

#### **Abstract**

##### **Background**

The Research Initiative to Support Empowerment of Girls (RISE) trial developed and used a sexual reproductive health rights (SRHR) curriculum to provide capacity building, transform knowledge and decisions about SRHR (including gender) to school and non-school going adolescents from 2016 to 2018. However, little is currently known about how such educational curriculums can shape gender norms and decision making among adolescents in Zambia. This study explores the relevance of the RISE gender component curriculum on girls' notions of gender norms and decision-making processes.

##### **Methods**

Using a case study approach, we recruited the participants from four schools in Central Province where the RISE intervention was being conducted. Data was collected through four key informant interviews, eight in-depth interviews and four focus group discussions with adolescents. Focus Group Discussions were used to capture gender-related school norms, roles, responsibilities and activities of boys and girls, with focus on gender dynamics. Data was analysed using Thematic Analysis.

##### **Results**

The study showed that RISE gender component triggered several positive gender norms which are relevant for addressing SRHR problems. Girls reported that as result of participating in the RISE sessions their self-esteem improved, and that they developed a strong resolve to achieve personal goals and delay intimate relationships with boys/men. Personal goals created responsibility to be aware of rights such as the school re-entry policy that enable girls to return to school after dropping due to early pregnancy. Role models such as the presence of a female head teacher encouraged girls to aspire for positions that are usually male dominated. At an interactional level, the environment that the facilitator created during the sessions through practices such as sitting arrangement, responding more readily to boys and girls on SRHR and gender issues triggered norm change by improving communication both verbal and non-verbal. Conversely, some girls were not



free to discuss sensitive topics for example, on menstruation and this reduced participation. Further, lack of confidentiality worked against girl's access to contraceptives due to disclosure of information to parents by health personnel. Further, limited discussions between parents and girls on SRHR, the lack of protection of rights and practice of early marriage have also caused barriers in addressing harmful norms.

**Conclusion**

The RISE intervention curriculum has capacity to nurture relationships that facilitate interactions that are capable of bringing about change of harmful gender norms, resulting in improved decision making for adolescent girls in SRH and gender.

**Session 45. Perspectives on the sustainable development goals (SDG 17)**

2021-06-16

14:15 - 15:45

Session 45. Perspectives on the sustainable development goals (SDG 17)

## **S45.1 - Modeling Interlinkages between Sustainable Development Goals**

2. Individual abstracts

**Ranjula Bali Swain**<sup>1</sup>

Shyam Ranganathan<sup>1</sup>

<sup>1</sup> Ranjula Bali Swain, Misum, Stockholm School of Economics and Professor of Economics, School of Social Sciences, Södertörn University

Universal, ambitious, and arguably ambiguous, the UN's Sustainable Development Goals (SDG) are difficult to measure, monitor, prioritize and achieve. They are a multi-dimensional construct of economic, social and environmental indicators that work through complex interlinkages. We investigate these interlinkages at the SDG target level to identify the trade-offs and synergies between the SDGs. Second, we identify the community of interlinked SDG targets to determine if the SDGs can be benchmarked and prioritized for different regions. Employing network analysis approach the analysis is based on the IAEG-SDG data for the period 2000-2017. We find several positive and negative inter-linkages (reinforcing and balancing feedbacks) between the SDG targets. The trade-offs, however, are much weaker than the synergies. Analyzing network structures for different regions, our results suggest that universal benchmarking of SDGs is counterproductive. We argue that it may be useful to identify a specific community of SDG targets, and use them as a guide to prioritize certain goals in different regions.

**Keywords** : Sustainable Development Goals (SDGs), system analysis, network analysis, sustainable development indicators

**JEL Classification** : Q01, O1, O20, Q56, D85

## S45.2 - The importance of targeting historical lock-ins to achieve the 2030 Agenda

### 2. Individual abstracts

**Henrik Carlsen**<sup>1</sup>

<sup>1</sup> SEI

**Introduction:** The 2030 Agenda clearly states that the goals and targets should be seen as interacting pieces of an indivisible whole, and research on SDG interactions highlight both the importance of considering interaction for implementation to be successful, but also the challenges given by the uncertainties that surround these interactions. They are strongly influenced by contextual factors, and because goal implementation is by definition a future-oriented exercise data will always be imperfect. In this paper we present a practical yet scientifically sound way to cope with these uncertainties and provide policy-making with consistent scenarios that clarify which SDGs will be unattainable if historical patterns of interaction between social, environmental and economic development goals are maintained.

**Methods:** We use historical data (1990-2016) on SDG indicators. In order to reduce the multitude of indicators per goal but only under the condition that all information that the indicators contain is utilized we use principal component analysis. We then apply correlation analysis to the identified principal components. For identification of future scenarios consistent with historical patterns we use cross-impact balance analysis. Illustrations are provided for a set of high- to low-income countries.

**Results:** Finding no consistent scenario where progress can be achieved on all 17 SDGs they demonstrate the importance of addressing historical lock-ins in order to progress on all goals, and that failing to induce transformative change will both come at high costs for sustainability and be at odds with the principle of treating the SDGs as an indivisible whole.

**Conclusions:** Business-as-usual will not deliver the desired outcomes for SDG implementation, but it makes an important reference point for promoting a different trajectory for the future. This paper identifies how countries face historical lock-ins of goals interaction that render certain SDGs unattainable. Such a reference point has previously been lacking. Illustrating with four countries we find no scenario that is consistent with the patterns of SDG interaction during the past 20-30 years and in which all 17 SDGs can be attained. This sends the clear message that if UN member states are to live up to their commitment of progressing on all 17 SDGs policy need to promote changes to address these historical lock-ins and patterns of interaction.

### **S45.3 - The 2030 Agenda, Education for Sustainable Development (ESD) and the question of inequality**

2. Individual abstracts

**Sofie Hellberg**<sup>1</sup>

<sup>1</sup> University of Gothenburg

The Agenda 2030 has an explicit focus on combatting inequality which marks a difference to the Millennium Development Goals. In the 2030 Agenda, the commitment to address inequality is captured in its pledge to “leave no one behind” and, inequality even has its own goal in the form of SDG 10. Along with climate change, the 2019 SDG report describes increasing inequality “among and within countries” a “defining issue of our time”. At the same time, there is an extensive debate on the concept of inequality, how to assess and measure it, on inequality trends globally and nationally as well as its causes and mechanisms.

This plethora of perspectives raises questions on how inequality is understood and defined in the SDG agenda and its specific targets and indicators. There is already some academic work done on this which have highlighted that different inequality concepts — but without being interrelated — feature in the agenda (see Freisten and Mahlert). It has also been suggested that the Agenda falls short of addressing income, wealth and social inequalities (MacNaughton). Building on this literature this paper explores further the question of show the notion of sustainable development, as presented within the frame of the 2030 Agenda, is conceptually related to questions of inequality.

The content of this paper is part of a research project on Education for Sustainable Development (ESD) and inequality that is funded by the Swedish Research Council. This particular paper conducts a discourse analysis of how core UN documents on Sustainable Development and ESD refer to, and define, the concept of inequality as well as how the problem of inequality is constructed as a problem (or not) in the first place. The paper applies a biopolitical perspective which places in focus the different ways in which populations and their life conditions are constructed and governed as well as the distinctions that are made between them.

The results of this analysis can help making sense of the tensions between the general pledge to address inequalities in the 2030 Agenda and the practical ESD implementation, which within a neoliberal framework naturalizes inequalities through reference to individual and population-based characteristics, rather than to structural factors. On the basis of this, the paper concludes that through a focus on the biopolitical aspects of the current development discourse we gain insights into the possibilities and limitations of the 2030 Agenda to address global inequalities.

**Session 46. Tree cover and forest dynamics (SDG 15, 13)**

2021-06-16

14:15 - 15:15

Session 46. Tree cover and forest dynamics (SDG 15, 13)

## **S46.1 - Climate-Smart Agriculture, Cropland Expansion, and Deforestation in Zambia: Linkages, Processes, and Drivers**

### 2. Individual abstracts

Hambulo Ngoma<sup>1</sup>

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Although increasing agricultural production is necessary to feed a growing population and meet changing dietary preferences, basing this on expanding area cultivated at the expense of the forest is unsustainable. Expanding agriculture area into forests accounts for 80% of the deforestation globally. Deforestation contributes to climate change, which in turn disproportionately affects smallholder farmers who depend on rainfed agriculture and yet have the least means to adapt to and cope with climate shocks. Climate-smart agriculture (CSA) is considered a necessary condition to increase agricultural productivity and resilience, as well as to adapt to and mitigate climate change. However, the pathways through which CSA can reduce deforestation are neither obvious, nor are they well understood. This paper aims to contribute towards a better understanding of the linkages among CSA, cropland expansion, and deforestation.

Based on detailed nation-wide household-level data, we use an instrumental variable approach to assess cropland expansion and drivers of that expansion, and assess whether CSA reduces cropland expansion in Zambia. We supplemented this analysis with the spatially-explicit Hansen et al. (2013) data to characterize district-level forest cover changes between 2001 and 2018 and correlate these data with district-level changes in cropland expansion to identify processes and patterns. Key results show that one-fifth of the 7,241 farm households surveyed in 2019 expanded cropland between the 2016/2017 and 2017/2018 farming seasons. Smallholder cropland expansion into forests represents about 4.6% of cultivated land and about 60% (or 150,000 ha) of the 250,000 ha of forests lost per year in Zambia. Adopting CSA had no statistically significant effect on cropland expansion in our national sample, indicating that CSA alone might not avert expansion-led deforestation. However, age and education are associated with reduced expansion, while secure tenure, landholding size, being male-headed, and distance from the plot to the homestead are positively related to cropland expansion. Thus, CSA-led (technological) intensification alone might not reduce deforestation unless if complemented with improved natural resources management, which would control conversion of forestland to other uses, including agriculture.

Productivity-enhancing agricultural technologies, like CSA, would be more likely to lead to win-win outcomes for conservation and food production if accompanied by improved resource governance initiatives and better land use planning. Hence, concerted efforts are needed to identify sustainable and efficient ways to scale-up and scale-out CSA adoption in Zambia and the region, given the strategic role CSAs play in building climate resilience.

## **S46.2 - Forest Dynamics in the Peruvian Amazon: Understanding Processes of Change**

### 2. Individual abstracts

**Kristina Marquardt**<sup>1</sup>

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The Peruvian government seeks to stop deforestation in its primary forest in the Amazon. It alleges that the main culprit is smallholders who practice swidden farming. But this is a simplified view, concealing the main reasons for deforestation and the complexity of land use changes. These challenge ideas of simple forest transitions. By studying land and forest use through the lens of the indigenous people Kechwa-Lamista, we identify three “ideal” types of land use - the swidden and tree based systems of the Kechwa-Lamas people, agricultural intensification practices (particularly perennial cash crops) and state conservation approaches. In practice these uses overlap spatially and have synergistic and antagonistic aspects. Kechwa-Lamas may clear land for tree cash crops, but they also manage forests and seek to conserve them for particular needs; migrants from the Andes clear forests to plant perennial crops penetrating the ancestral territories of the Kechwa-Lamas and estate agriculture often intrude into primary forest and jeopardize existing subsistence systems. The opening up of San Martín and its gradual integration into the nation’s market economy, together with the local government’s division of the region into zones of different purposes, have had both intended and unintended impacts. A more nuanced notion of the forms and complexity of forests and their transitions particularly where secondary and managed forests replace previous rainforest areas is needed. The findings draw on field observations and interviews with households, key NGO informants and a detailed case study of 13 Kechwa-Lamas villages.



### **S46.3 - Carbon Flow Model Development for Moribane Forest Reserve – Sussundenga, Mozambique**

#### 1. Sessions

**Francisco Francisco**<sup>1,2</sup>

Almeida Siteo<sup>1</sup>, Henrik Hedenås<sup>3</sup>, Eunice Cavane<sup>1</sup>

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Forests have an important role in mitigating global climate change by removing CO<sub>2</sub> from the atmosphere. Carbon (C) stock in forests can be transferred to harvested wood products (HWPs) which are important global C sinks. HWPs influence the C flux, its approach is linked to the strategies that improve the accuracy of the C accounting. There are no systematic tools that can be applied consistently to establish causal links between forest exploitation and human wellbeing, relevant to major decisions affecting ecosystems. The objective of this study is to develop a model for C stock services flow in different pools, land use type, and its annual change in HWPs. The study included a social survey in 149 out of 479 households living inside the Moribane Forest Reserve and, ground survey through 72 rectangular 50x20m plots, being 24 in each of three considered land use type (LUT), namely forests, fallow and agriculture land. Results show differences between the stocks of C contained in the above-ground tree biomass between LUT (Pvalue<0.05). Differences were also observed in the average C stock contained in the poles between the predominant house patterns (Pvalue<0.05). In useful time, there were no differences between the retirement of the poles type (PT) 1 and the PT-2-4 in relation to the respective IPCC reference retirement for the respective categories (Pvalues>0.05). In the post-use, differences between PT-2-4 and PT-2-4 IPCC reference C retirement were observed Pvalue<0.05. There were no differences in the annual emission rates in useful time, post-use and, in reuse of the fuelwood from the reserve with the respective IPCC reference rates. The results can contribute to more accurate reports of forest C flow accounting and HWP pool to meet the objectives of monitoring greenhouse gases, climate change mitigation, local decision-making on sustainable development and, provides tools for a suitable management plan. Key words: Carbon, emission, harvested wood products, retirement, fuelwood.

#### **S46.4 - Factors influencing on-farm tree seedling survival across various farm contexts in the Eastern drylands of Kenya**

##### 2. Individual abstracts

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Leigh Winowiecki<sup>1</sup>, Mary Crossland<sup>1,2</sup>, Ibrahim Ochenje<sup>1</sup>, Esther Kiura<sup>1</sup>, Anne Kuria<sup>1</sup>, Fergus Sinclair<sup>1,2</sup>

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**Introduction**Trees on farm play a key role enhancing both ecosystem and livelihood resilience in drylands. This includes providing ecosystem goods and services such as food, fodder, fuel, reducing soil erosion and enhancing soil health, enhancing biodiversity, and providing opportunities for generating additional income. They also contribute to the household food demand and nutritional requirement. Despite this, tree planting in the eastern drylands of Kenya is largely characterised by low tree seedling survival. This is partly due to unreliable rainfall, high levels of land degradation resulting in low soil productivity, planting of ecologically unsuitable tree species, and poor tree seedling management practices.

**Methods**To explore how different tree planting and management practices influence seedling survival, over 2000 farmers in Kitui, Machakos and Makueni Counties in Kenya conducted on-farm planned comparisons comparing survival across different planting and management options. This planting hole size, manure and mulch application, and watering varying context such as farm size, planting niche, soil health status. Seedlings of six tree species were distributed and planted in November 2016 and seven species in November 2017. Farmers planted between seven and 21 seedlings on their farm and survival monitored six months after planting using electronic data entry. Data was analysed using R statistical software.

**Results**Survival increased by 20% in Kitui, and 4% in Makueni and Machakos counties for seedlings planted in 2017 compared to those planted in 2016. Farmers reported that this was partly due to increased rainfall during the 2017 planting, improved farmer management of the seedlings due to practices learned during trainings, and a change in perception of the ownership of the tree seedlings. Watering, manure application and seedling protection by fencing positively increased influenced seedling survival. Manure application increased survival by 12% across all species with variation at the county level. The size of the planting hole did not significantly influence tree survival. However, differences were observed within species and counties. The planting niche and farm size did not have an influence on the survival with variation within the species and across the counties.

**Conclusion**While on farm tree planting is key to restoring agricultural productivity and increase the tree cover, it is important to understand the options that work best for the communities given their values, interests and resources. The planned comparison approach allows farmers to test, innovate and experiment to identify the land restoration options that work best for them given their context.

**Session 47. (Part two) Agronomy at work (SDG 2, 1)**

2021-06-16

14:15 - 15:45

Session 47. (Part two) Agronomy at work (SDG 2, 1)

### **S47.1 - Effect of irrigation depth, selected agronomic and post-harvest parameters on two Cassava (TMS 0581 and TME 419) varieties**

1. Sessions

**Christopher Akinbile<sup>1</sup>**

Remigius Eze<sup>1</sup>, Babatunde Ewulo<sup>1</sup>

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An attempt was made to ascertain the effects of irrigation depth, some selected agronomic and post-harvest parameters on two Cassava varieties, TMS 0581 and TME 419 and also perform comparative analysis under standard agronomic practices. The design was a Randomized Complete Block Design (RCBD) of four treatments and three replicates. Treatment A had fertigation, B used poultry manure, C employed NPK, 15-15-15 while D with no treatment was used as control. Some of the parameters measured included: depth of irrigation water in each of the treatment plots, agronomic parameters such as plant height, stem girth, leaf area, number of branches and leaves and post-harvest parameter as in tuber yields (with and without biomass) and results obtained were subjected to statistical analysis. From the results, TMS 0581 performed better in terms of plant height, stem girth, number of branches and leaf area, while TME 419 did well in terms of number of leaves only. Treatments A of all the four treatments and in both varieties, had highest average yields (without biomass) with values  $44.32 \pm 0.01$  Kg/plot ( $11.1$  Tons  $\text{ha}^{-1}$ ) in TME 419 and  $34.45 \pm 0.07$  Kg/plot ( $8.6$  Tons  $\text{ha}^{-1}$ ) in TMS 0581 respectively. Irrigation depth ranged between  $1.70 \pm 0.01$  (0.56 metres) and  $1.76 \pm 0.01$  feet (0.58 metres) indicating the presence of sufficient water supply within the root crop zone required for optimum crop growth and development. TME 419 is therefore recommended due to marginal higher yield and lower agronomic development with no visible negative effect on the yield.

## S47.2 - Retrieval of Maize Leaf Area Index Using Hyperspectral and Multispectral Data

### 2. Individual abstracts

**Sosdito Mananze**<sup>1, 2, 3</sup>

Isabel Pôças<sup>2, 3</sup>, Mario Cunha<sup>3, 4</sup>

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Field spectra acquired from a handheld spectroradiometer and Sentinel-2 images spectra were used to investigate the applicability of hyperspectral and multispectral data in retrieving the maize leaf area index in low-input crop systems, with high spatial and intra-annual variability, and low yield, in southern Mozambique, during three years. Seventeen vegetation indices, comprising two and three band indices, and nine machine learning regression algorithms (MLRA) were tested for the statistical approach while five cost functions were tested in the look-up-table (LUT) inversion approach. The three band vegetation indices were selected, specifically the modified difference index

(mDId: 725; 715; 565) for the hyperspectral dataset and the modified simple ratio (mSRc: 740; 705; 865) for

the multispectral dataset of field spectra and the three band spectral index (TBSIb: 665; 865; 783) for

the Sentinel-2 dataset. The relevant vector machine was the selected MLRA for the two datasets of field spectra (multispectral and hyperspectral) while the support vector machine was selected for the Sentinel-2 data. When using the LUT inversion technique, the minimum contrast estimation and the Bhattacharyya divergence cost functions were the best performing. The vegetation indices outperformed the other two approaches, with the TBSIb as the most accurate index (RMSE = 0.35). At

the field scale, spectral data from Sentinel-2 can accurately retrieve the maize leaf area index in the study area. This research findings are of particular relevance for the operational application of spectral data in crop monitoring, though

Sentinel-2 data is freely available and presents good spatial and spectral resolutions. However, future research should consider using field LAI data acquired with high precision equipment, including other

crop types and extensive sampling, in order to increase the ground truth data and, as a result, improve

the accuracy of LAI retrieval. This study results highlight the importance of adapting the RS data and methods to the characteristics and conditions of the site and target of interest rather than to merely adopt it. In fact, the area under study presents very peculiar characteristics (low-input and highly heterogeneous farming systems) which constitutes an additional challenge in the application of remote sensing techniques. Thus, testing the three different LAI retrieval approaches using different types of spectral datasets enabled the definition of the best strategy to be applied within the study area. In fact, Earth observations (from satellite, airborne, and *in-situ* sensors) provide accurate and reliable information on the state of the atmosphere, oceans, coasts, rivers, soil, crops, forests, ecosystems, natural resources, ice, snow and built infrastructure, and their change over time, can be directly or indirectly used to assist governments, all economic sectors and almost all day-to-day

activities of society. The 2030 Agenda for Sustainable Development, recognizes the significant role that Earth observations and geospatial information could play in making the whole framework feasible through the provision of essential evidence, including the tracking of indicators over time, and supporting the implementation of solutions to reach specific targets. The effective use of the information in Earth observations can have a transformational impact on many societal challenges, such as those related with better monitor and protect fragile ecosystems, ensure resilient infrastructure, manage climate risks, enhance food security, build more resilient cities, reduce poverty, and improve governance, among.

### **S47.3 - Influence of Niger plant (*Guizotia abyssinica* L.) on growth and development of common beans (*Phaseolus vulgaris*)**

2. Individual abstracts

**Lynnete Oimbo**<sup>1</sup>

<sup>1</sup> University of Eldoret

Plants affect other plants growing in their vicinity either positively or negatively by producing exudates known as secondary metabolites. These secondary metabolites, also known as allelochemicals, can be harnessed and utilized in controlling the growth of weeds as a bioherbicide. The current worldwide demand for cheaper, more environmentally-friendly weed management technologies has motivated a number of studies on the allelopathic interaction between crops and weeds. Niger plant has been observed to have allelopathic effects on certain weeds. Studies have been done on the effect of allelochemicals on weeds but little on crops that coexist with the weeds. Treatments included a weedy check (no weed control measure), weed free, Niger plant intercrop and all weeds except Niger plant. Three varieties of beans (Rosecoco, Mwitmania and Mwezi Mbili) were used. The experiment was a 3 x 4 factorial laid out in Randomized Complete Block Design (RCBD) with three replicates. Data were collected on stand count at two weeks, plant height at 50% flowering, number of pods per plant, number of seeds per plant and stand count at harvesting. Data analysis was done by ANOVA in Genstat and means separated using Duncan's Multiple Range Test (DMRT). Results showed that Niger plant positively influenced the growth and development of beans. Niger plant can safely be intercropped with beans without compromising its growth and development. Further research should be carried out on the influence of Niger plant on bean yield and the exact metabolites involved.

**Key words:** Allelochemicals, Exudates, Interaction, Intercrop, Metabolites, Weeds.

## **S47.4 - A review of methods, indicators and sustainability problem representation in farm sustainability assessment**

### 2. Individual abstracts

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Around the world, farming sustainability is questioned in terms of productive, socioeconomic, environmental and institutional impact. At farm scale, sustainable and ecological intensification innovations aim at improving the sustainability of farms. Using tools and methods to monitor the sustainability level has been proposed to observe the impacts of these innovations. Existing reviews have addressed the use of particular tools in practices but no studies has reviewed systematically the diversity of tools existing, their framing of the sustainability and their use of indicators. We here assemble 124 methods and we describe their normative, procedural and systemic representation of sustainability, their sustainability structure and the diversity of indicators targeting the viability of farming, equity and gender and biodiversity conservation using the DPSIR framework. We found that the current methods could statistically be split into five distinct groups: "Long term monitoring of farm activities ", "Ex-ante assessment of sustainability with bio economic models", "Survey based and indicator based assessment of methods ", "Consultation based assessment", and "Active engagement of stakeholders based assessment . The level of participation and the type of model used were major discriminating criteria for calculating sustainability of farms. In parallel, we found seven ways of representing sustainability from classical views with the three pillars to more systemic ones questioning system properties using resilience, stability and robustness principles. Whilst most type adopted different representation of sustainability, some had restricted perspective on sustainability due to the reliance on models unable to quantify institutional or systemic indicators. Current models rely mostly on pressure indicators and state and impact are not addressed enough. We make some propositions of development to better embrace all the dimensions of sustainability with the different methods and increase the precision of sustainability assessment by moving from a driver-pressure perspective to a state-impact one.



## S47.5 - Identification of Resistance to Stem Rust of Wheat among Exotic Genotypes in Kenya

### 2. Individual abstracts

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Stem rust or black rust of wheat caused by *Puccinia graminis* Pers. f. sp. *tritici* has severely infected wheat crops historically, becoming one of the most feared wheat diseases worldwide. In 1998, the emergence of a new race *Ug99* and subsequently other variants, with virulence to the popularly used host resistance genes including *Sr31* has rendered 95% of the Kenyan cultivars susceptible. In less than two decades *Ug99* has evolved, with more than eight confirmed variants of the disease reported in Africa and beyond. This study was therefore conducted to identify new sources of resistance to stem rust in a collection of exotic genotypes. Three hundred and sixteen (316) bread wheat genotypes were identified from an earlier pre-screening population of 10,000 CIMMYT genotypes performed at KALRO-Njoro for two field seasons. These lines were challenged with the stem rust fungus under artificially created disease epidemics and host reaction to disease rated based on the Modified Cobb's (Roelfs *et al.*, 1992). The relative Final Rust Severity (rFRS), the average coefficient of infection (ACI) and relative area under the disease progress curve (rAUDPC) values were used to characterize the host lines for stem rust disease resistance. Moreover, various agronomic traits including plant height, tillering ability, and kernel weight were recorded for each genotype. Six genotypes namely, ALBW-100, ALBW-204, EPCBW-261, EPCBW-295, PCHP-309 and PCHPBW-310 that had significantly low ACI, rAUDPC and rFRS values were identified. Thirty-five genotypes showed the characteristic pseudo-black chaff (PBC) phenotype that is often associated with the non-specific resistant gene complex- *Sr2*, a potential source of partial resistance in bread wheat. These genotypes also showed low disease severity ranging between 20-25% and moderately susceptible (MS) – susceptible (S) infection types during both seasons of evaluation. There were significant differences ( $p \leq 0.05$ ) among the genotypes for plant height, 1000-kernel weight and number of tillers, indicating that genetic variation existed within the study material that potentially could be exploited while breeding for resistance to stem rust. Based on the Pearson correlation, negative relationship between agronomic variables involving stem rust like plant height, spikelet length, and 1000-kernel weight, evidently pointing to the negative effects the stem rust fungus has on the various plant characteristics including yield. The stem rust-resistant genotypes with good agronomic traits could be introgressed into adapted Kenyan backgrounds while the genotypes showing the presence of PBC could be utilized to develop durable stem rust-resistant wheat. Inheritance studies to elucidate the exact genes conferring resistance to stem rust could be conducted for breeders to exploit their genetic variability.

**Session 48. Stakeholders involved in the advancement of a sustainable transformation (SDG 16, 9)**

2021-06-16

14:15 - 15:15

Session 48. Stakeholders involved in the advancement of a sustainable transformation (SDG 16, 9)

## **S48.1 - Effective Institutional Partnerships for Greater Research Impacts on Agricultural Value Chains Development in Rwanda**

2. Individual abstracts

**Alfred Runezerwa Bizoza**<sup>1</sup>

Gilbert Kayitare<sup>2</sup>, Linley Chiwona<sup>3</sup>, Sarah Wamala<sup>4</sup>, Alphonsine Mukamuhirwa<sup>1</sup>, Nathan Kanuma<sup>1</sup>, Eularie Mutamuliza<sup>1</sup>, Franklin Amuakwa<sup>3</sup>, Antoine Karangwa<sup>1</sup>

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<sup>4</sup> Tech University of Malardalens Hogskola

**Introduction:** Effective institutions are important drivers of economic growth and transformation. Similarly, collaborative partnerships between institutions across various sectors are expected to contribute to the national transformation. This is supported in Rwanda's Vision 2050 and the national Strategy for Transformation (NST1). Specific to agriculture, the current Strategy for Agricultural Transformation envisions greater contribution of many actors in the development of value chains. But, over time the role of the University of Rwanda (UR) as a knowledge and research institution has been limited. To improve its role, UR has initiated an innovative approach the "Societal University Village Initiative (SUVI)" aimed to nurture the understanding of the issues facing the community in different sectors and ensure greater research uptake for sustainable rural transformation.

**Methodology:** We engaged with 66 representatives of actors through focus group discussions in the value chains of Cassava, Dairy, and Rice in Ruhango, Burera, and Nyagatare Districts respectively. This was done in a four-stage process. (1) participants were asked to identify key policy issues affecting the above value chain in small groups of about 5-8 people, (2) to cluster the identified policy issues around key thematic areas, (3) to rank them, (4) and propose possible actions and roles of actors; information at this stage informed a national policy dialogue of all actors in 2019. Additional data was obtained from study on SUVI aimed to show case on how UR can contribute to rural transformation.

**Results:** The findings reveal 1) deficiencies in the market structure; 2) low participation of farmers in fixing the minimum reference price (where applicable) and limited knowledge of the cost of production by farmers. Where partnerships are effective, these have resulted into 3) improved production and marketing systems which in turn have translated into better returns to farmers' investments, 4) improved farmers' advocacy skills.

**Conclusions:** The study is about finding innovative approaches to improve the role of research and knowledge institutions in agricultural transformation and contribute to the overall rural development in Rwanda. Looking forward, more efforts are required to ensure the active role of research and knowledge institutions in the development of agricultural value chains to transform rural development.

## **S48.2 - Participatory development of agroforestry systems in Northwest Vietnam: using quantitative and qualitative data for evaluation and design improvement**

### 2. Individual abstracts

**Van Hung Do**<sup>1,2</sup>

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Poor communities and ethnic minorities living from smallholder farming dominate upland areas of the Mekong. In these areas, farmers are facing challenges of land degradation, climate change and limited access to markets. Sustainable land management practices, diversification of the farming system and income sources, improved productivity and linking to markets are needed to improve the livelihoods and resilience of farming families.

We evaluated the participatory development of two long-term agroforestry (AF) experiments in the Northwest region of Vietnam, in order to assist farmers to shift from unsustainable practice of sole annual crops to AFs. The performance of two fruit tree-based AF systems, longan-maize-forage grass and H'mong apple (*Docynia indica*) - forage grass were compared with sole tree and sole annual crops as controls. Farmer's perspectives on the two systems were investigated through interviews.

The 7-year (2012-2018) record on plant productivity show lower yield of longan in AF compared to sole plantation (0.38 and 1.04 ton ha<sup>-1</sup> year<sup>-1</sup> respectively), comparable results in terms of maize yield (4.6-ton ha<sup>-1</sup> year<sup>-1</sup>), and in addition, AF could provide 15-ton ha<sup>-1</sup> year<sup>-1</sup> of forage grass. The AF system generated a positive annual income, which was 2.4 times higher than sole maize while sole longan did not generate profit due to high investment cost. In the other AF system, the fruit production (i.e. *Docynia*) was also lower than in sole tree plantation (1.3 and 4.2 ton ha<sup>-1</sup> year<sup>-1</sup> respectively) but AF provided 64-ton ha<sup>-1</sup> year<sup>-1</sup> of forage grass, which resulted in an income that was 3.5 time higher than that from sole tree plantation. In addition to higher economic benefit, the two AF systems had a shorter break-even-point than sole fruit tree systems.

The local interview revealed that farmers gained a high economic benefit from the AF systems. However, they emphasized that the income can be optimized through better management that reduces competition between system components, especially as the systems matures (plants are growing bigger). In addition, as ecological benefits, they noticed the importance of grass strips in reducing soil erosion and maintaining soil fertility, but a wider use of grass apart for fodder, is desirable. They also indicated that the expansion of AF practices in the region will need financial incentives to support investment costs. Further, improved market-value chain for fruits are needed, especially in terms of market stability. Better knowledge on field management practices was also identified as an enabling factor for the development.

### **S48.3 - The perceptions and practices of Zambian farmers and traders on sheep and goat health and disease**

#### 2. Individual abstracts

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Small ruminants (sheep and goats) play vital roles in poverty alleviation and for food security in low- and middle income countries such as Zambia. Consequently, infectious diseases of small ruminants can have serious implications on the success of the Agenda 2030 Sustainable Development Goals (SDGs). Dissemination of infectious diseases is partly linked to human behaviour and hence, understanding perceptions and practices of actors within the small ruminant value chain is highly relevant for efficient disease control. The aim of this empirically driven study was to contribute knowledge about the perceptions and practices of two important actors in the Zambian small ruminant value chain, i.e. farmers and traders, with regard to sheep and goat health and disease. Semi-structured interviews with traders were conducted at the two largest small livestock markets in Zambia : Lusaka market in the capital and Kasumbalesa market near the border to the Democratic Republic of Congo (DRC) in April-May and September 2018. In addition, semi-structured interviews, focus group discussions and participatory exercises with sheep and goat farmers in Nakonde district were performed during the same time period. The perceptions and practices of farmers and traders differed in many aspects, e.g. in their description of the model peer. While farmers commonly emphasized having good relationships with one's animals and a caring heart, traders were human-centred and focused on maintaining good customer relations. Both actors mentioned frequent cleaning of the pen and keeping healthy animals, but while farmers stressed this for the comfort of the animals, traders were focused on attracting customers. This difference in perception may affect the likelihood that respective actor groups engage in disease transmitting behaviours. Both farmers and traders appeared knowledgeable of their potential role in disease dissemination, however, they would still occasionally engage in risky behaviours in spite of this awareness. Previous research often conclude that farmers and traders act sub-optimally due to lack of knowledge, while the present study indicates that lack of knowledge is not central to why farmers and traders engage in risky or disease-transmitting practices. Greater awareness of other reasons for certain perceptions and practices can be essential in formulating risk communication strategies and mitigation measures that are relevant to the local context, as well as alternative strategies for changing risky behaviours.

## **S48.4 - Farmer-made agro-climate information services accelerate adaptive learning**

2. Individual abstracts

**Elisabeth Simelton**<sup>1</sup>

Tam Thi Le<sup>1</sup>

<sup>1</sup> World Agroforestry (ICRAF Vietnam)

### **Farmer-made agro-climate information services accelerate adaptive learning**

#### Introduction

Many Southeast Asian agro-climate services can be characterized as top down, with disruptions both between involved departments and between national to local level channels, and little feedback on what advise female and male farmers' need. Furthermore, when agricultural advise exist, monoculture is often the norm. Changing these systems takes time and may require diverse strategies.

#### Methods

This presentation draws on implementation reviews of two agro-climate information services projects in Vietnam, Cambodia, Lao PDR, and Myanmar from 2014 to 2020. Combining fieldnotes, survey data with over 1500 farmers, and key informant interviews, we focus on “defining moments” that changed the mindsets of actors, from donors to farmers.

#### Results

Among those situations included round-table dialogues with meteorologists, agriculture planners, extension officers and farmer representatives about the indicators that farmers needed; and informal conversations where sensitive knowledge gaps were filled. Government officers actively involved in translating and evaluating forecasts and interacting with farmers in the field enabled feedback mechanisms. Participatory preparation of low-tech agro-advisories created social learning opportunities. Agro-climate services for a range of crops, packaged with other rural development activities, e.g. savings & loans associations and awareness events, allowed farmers to choose and self-invest in their preferred farming systems. This also promoted more efficient use of resources.

#### Conclusions

Among the conclusions: project designs towards adaptive learning gave the field implementers a flexibility to turn unexpected challenges into opportunities and respond to farmers' changing needs, which enabled adoption and buy-in of vital actors. This meant changes to original plans that were impossible to predict at project proposal stage.

Looking ahead, we discuss with agro-climate services becoming privatized and tied to ag-input providers, can we ensure they meet the diverse needs of farmers?

**Session 49. (Part two) Post-war transitions, peacebuilding and development  
(SDG 16)**

2021-06-16

14:15 - 15:45

Session 49. (Part two) Post-war transitions, peacebuilding and development (SDG 16)

## S49.1 - Post-war transitions, peacebuilding and development

### 1. Sessions

#### **Elisabeth Olivius<sup>1</sup>**

Bart Klem<sup>2</sup>, Malin Åkebo<sup>1</sup>, Sunil Bastian<sup>1</sup>, Georg Frerks<sup>3</sup>, Lars Waldorf<sup>4</sup>, Nilanjana Premaratna<sup>1</sup>, Jenny Hedström<sup>5</sup>, Claire Smith<sup>6</sup>, Veronica Strandh<sup>1</sup>, Benni Yuzrisa<sup>7</sup>, Chris Van der Borgh<sup>3</sup>, Magda Cardenas<sup>1</sup>, Joakim Öjendal<sup>2</sup>

<sup>1</sup> Umeå University

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#### **Session description:**

Armed conflict is a major obstacle to global sustainable development. Peacebuilding is not only central to Sustainable Development Goal 16 (peace, justice, institutions) but in fact connects to all goals. Both the scholarship and policy-practice with regard to peacebuilding are at an impasse, however. Interventions have been accused of imposing western hegemony, neglecting local views and experiences, and therefore failing to construct lasting and legitimate peace. Research paradigms continue to struggle with old dilemmas: the conceptualization of peace, questions of legitimacy, the tendency to overestimate the efficiency of international interventions and the myriad of ways in which conflict and violence rear their head after peace is declared. Building on recent critical and feminist peace scholarship, our central point of departure is to work with the term post-war transition (rather than war-to-peace transition). Much like the term post-colonialism, the prefix post in post-war transition does not mark a definitive after, but a continued struggle against the enduring legacies of what preceded. This is manifest in political structures (often entangled with violence), in social realities (the bearing of the conflict in articulations of identity) and our very foundations of knowledge (idioms of peace, euphemisms of war, contested historiography, material culture). It is only through recognizing and engaging with these multifarious struggles, we posit, that post-war transition can be understood. This it opens new perspectives on post-war struggles and our (however defined) role in them. The first session is focused on Sri Lanka ten years after the separatist war; the second session comprises a rich variety of post-war contexts in Asia and Latin America.

#### **Session contributors:**

The following contributors and paper topics are part the first of the two panel sessions:

1. Bart Klem, Gothenburg University, Sweden: *The problem of peace: Post-war transition, accidents of history and continued struggle*
2. Malin Åkebo, Umeå University & Sunil Bastian, Sri Lanka: *Beyond Liberal Peace in Sri Lanka: Victory, Politics, and State Formation*



3. Georg Frerks, Utrecht University, the Netherlands: *Peace as war by other means: Sri Lanka ten years after the war.*
4. Lars Waldorf, Essex University, UK: *Dancing Difference and Choreographing Inclusion: Corporeal Peacebuilding in Post-War Sri Lanka*
5. Nilanjana Premaratna, Umeå University, Sweden: *Interrogating peace and development through documentary film*

Together these contributions cover a broad range of post-war dynamics in Sri Lanka, including the unintended legacies of past peace interventions (Klem), state formation (Åkebo and Bastian), critique of prevalent definitions and approaches in post-war peacebuilding (Frerks), and the arts as an arena for peacebuilding and embodied experiences of peace (Waldorf and Premaratna). The following contributors and paper topics are part of the second of the two panel sessions:

1. Elisabeth Olivius, Umeå University, Sweden & Jenny Hedström, Örebro University, Sweden: *Their peace is not for us: Discrepancies between state peacebuilding and local conceptions of peace in Myanmar*
2. Claire Smith, York University, UK: *Illiberal peacebuilding: order and democracy in Myanmar*
3. Veronica Strandh, Umeå University, Sweden & Benni Yuzrisa, Tenggara, Indonesia: *War widows' experiences and aspirations of peace in Aceh, Indonesia*
4. Chris Van der Borgh, Utrecht University, the Netherlands: *War and peace as strategic action: The case of El Salvador*
5. Magda Cardenas, Umeå University: *Navigating gender equality and ethnic minority rights in the Kachin conflict*

Covering cases in Asia and Latin America, this session highlight the multiple ways in which legacies of war shape post-war contexts. The session explores competing conceptions of what peace is and should be (Olivius and Hedström), the emergence of illiberal peacebuilding (Smith), post-war gang violence (Van der Bergh), and the post-war experiences of war widows (Strandh and Yuzrisa) and women activists (Cardenas).

**Session format:**

- Double panel session, 2\* 90 minutes
- Each paper presenter will have a maximum of 10 minutes to present their paper. After each presentation, the next presenter will offer some reflections on the previous contribution before moving on to his or her own presentation. This breaks up the presentations and creates more dynamic sessions.
- The sessions are moderated by Professor Joakim Öjendal, Gothenburg University, who will keep time during presentations and provide a few overarching reflections on the session theme after all five presentations in each session. After this, about 30 minutes will remain for Q&A with the audience and responses from the presenters.

**Session 51. Mobilization, mobility, labor and development in an unequal world  
(SDG 10)**

2021-06-16

14:15 - 15:45

Session 51. Mobilization, mobility, labor and development in an unequal world (SDG 10)

## **S51.1 - Constructing Space for Freedom – A Critical Exploration of Faith Based Organizations' Strategies in Anti-Human Trafficking**

2. Individual abstracts

**Andreas Henriksson<sup>1</sup>**

<sup>1</sup> Umeå University

Human trafficking affects people all over the world on a large scale, even though its exact prevalence is debated. This paper presents a new research project, which aims to explore the anti-human trafficking efforts of faith-based organizations (FBOs) in South-East Asia. Research on anti-human trafficking has been expanding in the recent decade, but in general FBOs and their work against human trafficking is considerably understudied. This project addresses this knowledge gap through qualitative case studies of FBOs and their anti-trafficking activities in two South-East-Asian countries, Thailand and Cambodia, which are both countries that have been identified as hotspots for human trafficking. Drawing on institutional ethnography, the study will rely on interviews, participant observation, actor-mapping and document analysis. The focus of the study is to examine FBOs local strategies against human trafficking; explore which factors, such as donor influence as well as dominant conceptions about human trafficking, that shape these strategies; and finally analyze how they are received by local communities. Addressing these questions, the project will be highly relevant for the international anti-human trafficking and development community, as it can inform better strategies for partnering with local FBOs when countering human trafficking.

## **S51.2 - Wartime social movements – Unseen movements in conflict-affected societies**

### 2. Individual abstracts

**Kyungmee Kim<sup>1</sup>**

<sup>1</sup> Department of Peace and Conflict Research, Uppsala University

I propose a framework to analyze social movement in violent contexts—or what I call “wartime social movement”, which refers to a movement organized by non-armed actors making “finite” claims against the state. Numerous movements promoting civil rights, environmental protection, labor rights, land issues, social justice, and gender equality have taken off in societies experiencing or recently experienced armed conflict. These claims manifested in movements reflect inequalities in society through unequal economic distributions and political representations. I illustrate three types of wartime social movement in case studies of movements in Myanmar’s conflict areas, namely movements promoting gender equality, environmental protection, and ethnic language education. Developing a typological theory, crucial conditions and influential factors emerge in the analysis, namely political structures, ideology, and social and identity-based networks. The results suggest that political contexts and structures greatly matter in mobilizing movements in conflict-affected societies where precarious security situations inhibit activism. Studying of wartime social movements also helps to understand the role of social and identity networks and ideas in mobilization. At last understanding participation to wartime social movements improves our understanding of civilian participation in collective action in civil war. Local communities participate and actively engage in movements promoting various progressive social agendas during and aftermath of armed conflict. This sheds light on the possibility to empower conflict-affected communities to inform policy debates on providing in the development and humanitarian aids in conflict and post-conflict settings.

Keywords: social movements, resistance, typological theory, armed conflict, civilian agency, mobilization, Myanmar

## Poster

## **Poster session 1**

2021-06-14

16:00 - 16:45

Poster session 1

## **P1.1 - Honey Harvesting Management and Sustainability for Economic Empowerment of Youths in Nsukka ,Enugu State, Nigeria.**

2. Individual abstracts

**Ngozi Osadebe<sup>1</sup>**

<sup>1</sup> University of Nigeria, Nsukka

### **Introduction**

Honey harvesting is one of the most notable traditional business practices of Nsukka Community. However, with increase in access to western education; and the lure of white collar and overseas jobs, youths lost interest in the acquisition of skills required to operate as honey harvesters. Many fled their villages to look for greener pastures in major Nigerian towns. However, the economic realities of the towns forced many youths back to the villages to take up the honey harvesting business which they once neglected. The problem now is “How do we manage, sustain and create lucrative employment in honey harvesting to attract and retain youths as a viable economic venture for the transformation of themselves and their communities.

### **Methods**

This study employed descriptive design and qualitative methods. Six honey harvesters in Nsukka Central Local Government Area who possess at least first degree of University education participated in the discussion. The participants were identified through the Snow ball method. The focus group discussion took place at the home of one of the honey harvesters. The result of the focus group discussion was transcribed, sorted, coded and emergent themes identified.

### **Results**

The results showed that honey harvesting will attract and retain youths as a viable economic venture if:

- Artificial plant nectars should be developed and used to attract bees regularly against the natural method which depends on luck to attract bees.
- A means of harvesting honey without killing the bees should be developed as killing the bees depletes their numbers and reduces the quantity of future harvest.
- Lands should be provided to youths to serve as honey harvesting and bee breeding sites.
- Construction of water proof honey bee sites to ensure that honey harvesting takes place throughout the year against the old method of annual harvesting.

### **Conclusion**

Honey harvesting is a lucrative professional venture that if well managed will transform the lives of individuals and communities in Nsukka Central Local Government Area. It will help to fight

poverty, hunger and inequalities (goals 1, 2 and 10); and ensure decent work and economic growth. (goal 8).

### **Reference**

Okonkwo, E. E. (2012). Traditional Healing Systems Among Nsukka Igbo. *Journal of Tourism and Heritage Studies*. 1:1, 69-81.



## **P1.2 - Between Academic ‘Sympathy and Practitioner Cruelty’: Pragmatic Framework for Social Safeguards in Urban Resettlement**

2. Individual abstracts

**Dhammika Herath<sup>1</sup>**

<sup>1</sup> Senior Lecturer, Department of Sociology, University of Peradeniya, and a Resettlement Specialist for a Development Bank

The existing literature on development induced displacement and resettlement is vast and very rich. There is a parallel body of literature on social safeguards, which aim to minimise adverse impact of involuntary displacement in urban development projects. Social safeguards literature originates from contributions made by academics as well as International Organizations and Development Banks. Most academic literature display a soft corner for people, who become ‘victims’ of urban displacement/resettlement and are often critical about the role of practitioners, who implement/execute urban development projects, especially, those aiming at urban regeneration through resettlement of people and land re-development. There is a tendency among academics to place unchecked trust on the victimization narrative presented by those subjected to such involuntary displacement while it is assumed that practitioners, usually, adopt an insensitive and hard approach towards project affected people. Using qualitative and quantitative empirical data gathered in 2019-2020 from Colombo Sri Lanka, author of this paper, in his dual and shifting capacity as an academic and a practitioner, argues that there is another reality between the academic and practitioner perspectives; those subjected to urban displacement/resettlement suffer certain deep social impacts, the victimhood narrative is not always driven by an ‘objective’ revelation of reality as assumed by academics. Although the practitioners are often seen as cruel, the ground reality of displacement and resettlement is more complex than it is generally assumed. In Colombo Sri Lanka, the government has embarked on a large urban regeneration project, which resettle people from ‘low income communities’ in multi-storied apartment buildings in order to free-up land for redevelopment. Almost all the lands used for the purpose are state lands occupied ‘illegally’ by ‘low income communities’. Project affected people construct a narrative of victimhood but they are simultaneously engaged in a negotiation to maximise their economic gains by demanding benefits at state expense. The practitioners, at the same time, grapple between the pressure for maximising the gains for the state and demands by project affected people to maximise private gain. Therefore, there is a need to find middle-ground between the ‘academic sympathy’ and ‘practitioner cruelty’ and develop an empirical knowledge base and a pragmatic framework within which urban resettlement can be handled with social responsibility but no in a way which adds further burden to the public tax payers.

### **P1.3 - Local Action Plan for Santa Maria River Watershed**

#### 2. Individual abstracts

**Alberto Pascual<sup>1</sup>**

<sup>1</sup> Fundacion CoMunidad

#### Title:

Local Action Plan for Santa Maria River Watershed

#### Introduction

The Santa Maria River Watershed is a priority for Panama because it provides water to more than 200,000 people in three provinces: Veraguas, Cocle, Herrera and one indigenous region Ngobé Buglé, the watershed include a total of twelve municipalities in the country. In the last years, Panama has generated an urban development disorganized that took place in the cities of the interior of the country. In the Santa Maria Watershed, They settled development pole for this reason increasing the water demand for domestic, industrial and agricultural use. The scenario generates a strong pressure on the natural resources of the watershed, plus a lack of sustainable management of the upper, middle and lowers part of the watershed (inadequate agricultural and cattle practices, lack of protection of water sources.

#### Methods

One way to help meet the increased needs of the human population is through green infrastructure with sustainable management of the upper, middle and lower part of the watershed, generating impact at micro, medium and macro scale.

The Forests regulate the Hydrological Cycle, guaranteeing the quantity of water for the people that live in the watershed and improve the water quality that forests naturally filter water and reduce sediment. We will thus address the problem of increased demand for dry season water.

Specifically we will intervene in three areas

- 1) 2 Municipalities in Upper Part: Calobre and Santa Fe
- 2) 1 Municipality in Medium Part: Santiago
- 3) 1 Municipality in Low Part: Parita

Within these four municipalities we will undertake three activities:

Reforestation: Developing nurseries with native species and high absorption of CO<sub>2</sub>

Agroforestry: work with family farmers for more productive and more resilient requires a fundamental change in the form of management of land, water and soil nutrients to ensure that they are used more efficiently

Silvopastoral: planting trees with livestock, resulting in the availability of an important local source of firewood, timber, fruits and fodder for livestock for the family farmers.

### Results

For the First Phase of the Action Plan, we are working with the Municipality of Santa Fe and the Rural Cooperative that has a total of 1,200 members that are made up of family farmers in the upper part of the watershed. We develop a new brand of organic coffee with the small farmers and management the agroforestry in his farms. the objective is for the coffee farmers to become Certification of the Mountain Participatory Guarantee System (PGS) and part of The Mountain Partnership Products (MPP) initiative strengthens the resilience of mountain peoples, their economies and their ecosystems. It is a certification and labelling scheme based on environmentally and ethically sound value chain approaches, which promotes short, domestic value chains while ensuring transparency and trust between producers and consumers, fair compensation for the primary producers, conservation of agrobiodiversity and preservation of ancient techniques.

### Conclusions

The project tested and implemented a variety of measures and practices to demonstrate their multiple benefits for people and the environment and to support their wider adoption by local communities .The project also invested in setting up and facilitating participatory processes and in engaging stakeholders from different sectors and segments of the population, including indigenous people, local communities, youth and women. They established space for dialogue and collaboration across sectors, including forestry, agriculture, water and others, at the district or municipal level.

#### **P1.4 - Conservation agriculture : potential option for sustainable intensification of cereal farming system in Nepal.**

2. Individual abstracts

**Dipendra Pokharel**<sup>1</sup>

Resona Simkhada<sup>2</sup>

<sup>1</sup> Ministry of Agriculture and Livestock Development, Nepal.

<sup>2</sup> Nepal Agriculture Research Council, Nepal.

This study was conducted to assess the impacts of conservation agricultural practices on crop productivity, profitability and ultimately sustainability of the cereal based farming system of eastern plain region of Nepal. Majority of the farmers in this region are opting conventional practices which increases the production cost and lower productivity along with the decline in land and water productivity. Sustainable and Resilient Farming System Intensification (SRFSI) has been working in responses to the concerns about the sustainability of the cereal based farming system (rice-wheat and rice-maize) in Sunsari and Dhanusha districts. The study employed structured questionnaires and key informant surveys as the main data collection tools and project reports as the secondary sources. Descriptive statistics like sum, average, percentages, and ratios were calculated to evaluate the socio-economic and production input data. Productivity was measured using production per unit area and profitability was measured in terms of gross return, gross margin, return and benefit cost ratio. It has been found that there are several tangible benefits like lower labor utilization per hectare (71 people day<sup>-1</sup> ha<sup>-1</sup> as compared to 106 for conventional), lower input cost (NRs. 78,395 ha<sup>-1</sup> as compared to 102,727 ha<sup>-1</sup>), less irrigation with regards to ponding time (50%), and higher crop productivity (8.11tha<sup>-1</sup> as compared to 8.08 tha<sup>-1</sup> in rice-wheat and 13.1 tha<sup>-1</sup> as compared to 11.75 tha<sup>-1</sup> in conventional rice-maize) farming system through the adoption of CA practices.

Keywords: Conservation agriculture; plain region; cereal cropping system; productivity, profitability

## **P1.5 - Environmentally Sustainable Growth in the Context of State Fragility: Challenges to Ethiopia's Green Growth Strategy**

2. Individual abstracts

**Abduletif Kedir Idris<sup>1</sup>**

<sup>1</sup> Max Planck Institute for Social Anthropology, Halle, Germany

Fragility, described as "*the combination of exposure to risk and insufficient coping capacity of the state, system and/or communities to manage, absorb or mitigate those risks.*" can cause weakened state institutions. The relationship between environmental sustainability and state fragility can be represented in a cyclical process. Fragility conditions such as weak institutions and limited resources mean that resources are used in a non-sustainable manner thereby causing degradation of the environment and creation of scarcity. The scarcity of resources in the context of a poor country such as Ethiopia will, in turn, be a catalyst for inter-communal tensions that may flare up in to open conflict and violence as well as increase the vulnerability of such communities and the state at large to natural disasters. The effect of unmitigated natural disasters and open conflicts will, in turn, exacerbate the weakness of institutions and the elimination of resources thereby enhancing the fragility of the state.

In the last couple of decades, Ethiopia has managed to score impressive economic growth and attain several millennium development goals including reduction of infant and maternal mortality which increased the average life expectancy by 20 years. Moreover, it was at the forefront of the global climate change negotiations representing African perspectives and adopted what it dubbed the Climate Resilient Green Economic Strategy meant to guide the design and implementation of successive five-year development plans. Many observers agree that this has been partly possible as result of the relatively stronger state capacity by African standards. However in the last few years, first as result of continued nationwide protest movements and since February 2018 owing to the splintering of the hitherto dominant coalition party has led to severe weakening of law and order and led to a spike in violence including inter-communal violence leading to a rapid increase in the fragility of the Ethiopian state.

Through literature review, and analyzing empirical data relating to Goal 16 of the SDGs relevant for Ethiopia; particularly those dedicated to enhancing effectiveness of public institutions and the progress made in the implementation of the Climate Resilient Green Economy Strategy as well as the effects of recent fragility conditions, this paper aims to outline the challenges and the possible ways to pursue environmental sustainability in this particular context. More specifically this paper argues the key to breaking the cycle is to focus on the opportunities for out of the box solutions to pursue sustainability.

## **P1.6 - Biochar producing gasifier cookstove enhances interconnections between cooking energy, agriculture and climate change in small-scale farms in Kenya**

### 2. Individual abstracts

**James Gitau**<sup>1</sup>

<sup>1</sup> James Kinyua Gitau, 1. World Agroforestry (ICRAF), P.O. Box 30677-00100, Nairobi, Kenya. M.Njenga@cgiar.org and 2. Wangari Maathai Institute for Peace and Environmental Studies, University of Nairobi,

Most of the rural households in sub-Saharan Africa depend on biomass energy for cooking and heating mainly because of its affordability, availability and convenience. However, unsustainable sourcing, processing and inefficient utilization techniques of biomass energy lead to deforestation, land degradation, climate change and health problems associated with indoor air pollution. Biochar producing gasifier cookstove is a novel innovation with actual and potential socio-economic, health, environmental and climate impacts. The gasifier stove burns biomass under limited oxygen to produce heat used for cooking and heating space while the by-product is char suitable as fuel for another cooking and when used for soil amendment is referred to as biochar. One hundred and fifty households in Embu, Siaya and Kwale at the highlands, lowland and coastal regions in Kenya respectively were trained and issued with gasifier stoves and advised to save the produced char for upcoming field experiments. This aimed at assessing the functionality of the gasifier stove and how well it meets people's needs and aspirations. This was achieved through household surveys after 2-3 months of gasifier use, while fuel use, biochar yield for crop production and indoor concentrations of carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and fine particulate matter (PM<sub>2.5</sub>) were measured during household participatory cooking tests. Compared to three-stone fire, cooking with gasifier reduced the CO, CO<sub>2</sub> and PM<sub>2.5</sub> concentrations by 82%, 18% and 97%; 57%, 41% and 79%; 81%, 30% and 95% at Embu, Kwale and Siaya respectively. Gasifier had average biomass to char conversion efficiency of 17-18%. Households could save 32-52% and 18-43% if the char is considered as fuel and not fuel respectively. Stove/fuel stacking was also observed where households used gasifier alongside other stoves that they owned. Variations in gasifier performance across the three sites are attributed to the differences in the fuel types used, cooking culture and individual users' behaviors. Refilling and relighting the stove when cooking food types that take long to process and chopping wood into small pieces were the main challenges in using the new stove as identified by the cooks. The results indicate the importance of user participation in technology transfer, integration of socio and natural science disciplines while working with farmers and consideration of interconnections between energy, agriculture and climate change in farming systems. The study generated useful knowledge for policy development aimed at addressing poverty, hunger, energy, gender equality and climate action.

## **P1.7 - Challenging the global burden of disease: Cost-effective pain management**

### 1. Sessions

**Johan Hambræus**<sup>1</sup>

Lars Lindholm<sup>2,3</sup>

<sup>1</sup> MD

<sup>2</sup> PhD

<sup>3</sup> Professor

### Introduction

In the WHO Global Burden of Disease Study 2015 lumbar pain was identified as the 4<sup>th</sup>'s most important cause of disability and early death. Pain is one of the most important reasons for individuals to seek healthcare; in Sweden about ~7% of the population seek help for their pain each year. Pain rehabilitation programs (PRP) have been shown to be effective for many patients, but they are resource-intensive, expensive and time consuming. As an alternative, some patients are referred for interventional pain management (IPM), where the source of the pain is searched for by using x-ray verified diagnostic nerve blocks. In contrast to the PRP the technique can only be applied if you have access to fluoroscope and the physician has specialized training and skills in the methods used. But when established, it is less resource-intensive and time consuming than PRP. Pain-management is expanding, but still rudimentary in both South America and Africa. The question is how to best challenge the global burden of disease and treat chronic pain, and use the resources best.

### Methods

Two similar cost-effectiveness studies on management of chronic pain during the timespan 2010-2016. Patients assessed at a specialized PRP unit at Skåne University hospital and at a specialized clinic for IPM. Patient characteristics were explored. The time-costs, travel-costs and treatment-costs for the assessment as well as the treatments were calculated. The change in health-consumption (outpatient and inpatient care) and medication was collected from the National Board of Health and Welfare for the 3-months period before the start of the program and for the 3-months period one year after the program. Health related quality of life (HRQoL) was measured using EQ-5D before and during the first year after treatment. The cost/QALY gained was calculated.

### Results

The two studies revealed that the patients had a lot of similarities in terms of pain duration and HRQoL. There were more women assessed at the pain rehabilitation unit, and this was accentuated in those selected for the PRP. The results show that more patients was improved and to a higher level of HRQoL after the IPM than after the PRP. The cost/QALY gained for PRP was SEK 2962298 and for IPM SEK 198844.

## Conclusions

- Pain is one of the major causes for disability globally
- PRP's are expensive and is not shown to be cost-effective
- IPM focused on zygapophyseal joint pain is a cost-effective intervention



## **P1.8 - Back to the drawing board: the role of indigenous knowledge in managing climate change and climate variability**

2. Individual abstracts

**Onan Mulumba**<sup>1</sup>

Eriab Kato Ssebunje<sup>2</sup>, Irene Nakazibwe<sup>1</sup>, Peter Chris S. Kawungezi<sup>3</sup>

<sup>1</sup> Makerere University

<sup>2</sup> Cerebrate Hope Ministries

<sup>3</sup> Mbarara University of Science and Technology

**Introduction:** Unpredictable and extreme climatic changes has created much anxiety amongst the populations. Some areas in Africa and the rest of the world have continued to experience extended dry and wet seasons. Other areas have experienced higher temperatures both during the day and at night. Several campaigns have been launched to avert weather extremities and this led to the establishment of Sustainable Development Goal (SDG) 13 (climate action). Assessment of the impact of the Millennium Development Goals (MDGs) in 2015 highlighted many unmet targets. However, most gaps were addressed with specific targets during the establishment of the SDGs. While a lot is currently being done, climate change has continued to be a major concern, coupled with certain natural tragedies such as the wild fires in Australia, Corona virus in China and the dessert locusts in Africa. The initiatives to bring nature back to equilibrium are observed to hit deadlocks at some point and, meteorologists are also challenged by huge deviations of the reality from their projections. Therefore there is need to combine different aspects of knowledge to have a common threshold towards climate change and climate variability.

**Aim:** The aim of this paper is to seek indigenous knowledge, from different sources, about management of climate change and variability.

**Methods:** The research will review available literature on indigenous knowledge and also seek for traditional information from the locals about how climate change can be managed. The researcher will use document review and interview method to generate the required data. An interview guide will be used to capture qualitative data from 15 purposively selected respondents of the local community. The qualitative data will be analyzed using Atlas-ti and the results will be presented in form of tables and graphs.

**Results:** It is expected that the results of the study will exhibit blended techniques, beyond ordinary scientific knowledge on how climatic variability can be regulated. Furthermore, the results of this study are expected to help in rethinking strategies of managing climate change and climate variability.

**Conclusion:** The value of this study is attached to the strategies listed under SDG 13 and therefore it will help in analyzing alternative means of averting adverse climatic fluctuations. Indigenous knowledge in managing climate change is very vital but it is anticipated that some people may not be freely willing to disclose their knowledge.

## **P1.9 - Competitiveness of Cambodia's agricultural exports to China: A value chain analysis**

1. Sessions

**Narith Roean**<sup>1</sup>

<sup>1</sup> Roean Narith

### Abstract

Trade between Cambodia and China resumed soon after Cambodia opened its economy to the region and the world in 1989 by lifting export bans, privatising public enterprises and allowing foreign direct investment. The study uses value chain analysis (VCA) framework to analysis remaining constraints/ challenges in the value chain of selected commodities. Four main elements of VCA comprising value chain mapping, governance mechanism, benefit distribution and upgrading (products, process, function and intra-firm) are adopted to detect the internal constraints. Perspectives of domestic exporters through the in-dept interview about their capability to comply with non-tariff measures imposed by importing countries are also narratively reported. Cassava starch and cane sugar are selected for this study because they are the second and fourth most exported products to this destination and they are assumed to give competitive incentives to Cambodia's small-scale farmers to improve their livelihoods.

This study found that the value chains of these two industries engage various actors in a range of linkages. The cassava value chain is dominated by smallholders, while that of sugarcane is heavily reliant on large investors and only small proportion of sugarcane production is contributed by smallholders. Because large investors play a leading role from raw material production to marketing and trade, the sugarcane value chain has been upgraded significantly, while the cassava value chain has many gaps that need to be filled. However, production and transport costs still hurt the competitiveness of both cassava and sugarcane industries in the Chinese and wider international markets. The Cambodian government has improved the effectiveness of trade facilitation by shortening export procedures, reducing costs and making information about export procedures readily accessible. However, exporters have not received significant incentives. In reality, informal export fees remain high, making export costs for Cambodian exporters considerably higher than in neighbouring countries.

The lowering of production, transport and export costs merits greater attention as producers and exporters of Cambodian products are in good position regarding NTM compliance. Electricity cost should be reduced and a reliable electricity supply secured. Transport routes from production sites to major ports should be shortened and transport methods improved and updated. Efforts aimed at eliminating all informal fees should continue. Incentives for smallholders should be increased through the promotion of collective work to ensure the certainty of supply, quality and price stability and to encourage benefit and risk sharing among actors in the long-run.

## **P1.10 - Advancing Sustainable Democratic Transformation: Mapping the Political Science Discipline in Ghana**

2. Individual abstracts

**Kajsa Hallberg Adu**<sup>1</sup>

<sup>1</sup> Nordic Africa Institute

Equality, democratization, and freedom have been shown to be in decline worldwide, which beckons questions on the role(s) of universities and political scientists within this challenging context. West Africa paints a complex picture with substantial democratic improvements in some countries and democratic decline in others which experienced increased oppression. Our project is related to three Sustainable Development Goals: 4 Quality Education, 9 Industry, Innovation and Infrastructure, and 16 Peace, Justice and Strong Institutions and seeks to map the freedom, relevance, and impact of the discipline of political science in African political systems with different levels of democratization. This paper discusses how we went about mapping the discipline of political science on the African continent with a focus on the case of Ghana, a consolidated democracy on the continent. The method used were interviews with academics and other key stakeholders as well as a review of existing official data from government agencies and university websites. We considered what metrics would be important to measure freedom, relevance, and impact and found that constantly changing resources make academics' long term international impact unsustainable, further cementing the knowledge production asymmetries in political science where African universities consume rather than produce research. However, after a period of little official collaboration, political scientists in Ghana and Africa are increasingly organizing themselves into the Ghana Political Science Association (GPSA) and the African Association of Political Science (AAPS). In addition, Ghanaian academics are often activists and have been involved directly in important political transformations such as constitutional review and civil service reform and indirectly as election monitors and commentators.

## **P1.11 - DROUGHT RESILIENCE – Multiplying Capabilities with Shared Resources**

2. Individual abstracts

**Abdirahim Gure**<sup>1</sup>

<sup>1</sup> CARE International

### **1. Introduction**

Recent research in Somalia and the East Africa region emphasizes the need for livelihoods that are diverse in their risk profiles, highly nuanced to the context, as well as connected to other livelihood zones and resource bases. The Village Savings and Loan Association (VSLA) is CARE's successful micro-finance model under which savings groups are formed at the community level in order to reduce poverty, create employment, develop entrepreneurship and increase incomes through the financial and social empowerment of poor and vulnerable people. Through various development and resilience projects in Somalia, thousands of households have been grouped to form VSLAs, trained to manage small-scale business operations, provided with income generating support and linked to financial services.

This conference paper discusses the role that VSLAs play in building resilience to shocks and stresses, and explores potential resilience pathways for strengthened social capital using the VSLA model. It argues that resilience could be further improved through further expansion of program membership, focus on bridging capital requirements, and potential links with formal credit unions. The study has theoretical, empirical and practical significance since it contributes to the body of knowledge on community-based financing and insurance mechanism in drought-prone and fragile contexts.

### **2. Methods**

Data was collected using two primary methodologies: qualitative focus group discussions and key informant interviews. Field staff conducted nine (9) focus group discussions with VSLA members and ten (10) key informant interviews with a mixture of respondents in a total of four (4) target communities.

### **3. Results**

- Social funds from VSLAs respond to both individual and community emergency needs
- Knowing that loans were available during times of hardship made members' lives easier and gave them confidence
- Resilience capacity through access to private sector credit and social capital increased with VSLA membership
- VSLAs are an effective and efficient conduit for knowledge sharing and capacity development in a range of essential topics for enhancing household and community resilience
- Participation in VSLAs has bolstered the confidence of female members

#### **4. Conclusions**

The VSLA approach represents a potential pathway for strengthening the adaptive capacity of households and communities to cope with the impacts of disasters, create alternative livelihoods and access a wide range social and financial capital. Furthermore, the approach has empowerment and peace dividends for a patriarchal society with deep-rooted inter-clan conflicts.

## **P1.12 - Economic growth and CO<sub>2</sub> emission: a systematic review and a meta regression analysis**

2. Individual abstracts

**Dagne Getachew Woldemedhin**<sup>1</sup>

Engdawork Assefa<sup>2</sup>

<sup>1</sup> Ph.D. candidate, Center for Environment and Development, College of Development Studies, Addis Ababa University

<sup>2</sup> Associate professor, Center for Environment and Development, College of Development Studies, Addis Ababa University

**Introduction:** *This study addresses the global effect of economic growth on carbon dioxide emission (CO<sub>2</sub>). The relationship between economic growth and CO<sub>2</sub> has appealed the meditation of scholars, governments, and international institutions. This causality relationship reflected in terms of effect size. Several studies have done the effect of economic growth on CO<sub>2</sub> emission. Their finding varies and uneven to bring together the cumulative effect size. As to our knowledge it is hardly to find Meta-Regression Analysis (MRA) regards to the effect of economic growth on CO<sub>2</sub> emission. **Methods:** The Preferred Reporting Items of Systematic Reviews and Meta-Analysis is followed to search literatures and organize data. Hence, research articles are collected from elec-tronic databases from June 17-21/ 2019. **Results:** As a result, we managed 9279 observations and 69 estimates form 36 studies. The result from MRA, forest plots, and funnel plot confirm genuine effect, lack of publication bias and effect size heterogeneity among studies. The OLS and WLS models reveal that geographic region, economic group, type of journal, and publication year are determined the effect of economic growth on CO<sub>2</sub> emission. **Conclusion:** The authors believe that this study will contribute a lot for the existed knowledge of MRA in particular, and for the global environmental motive in general.*

## P1.13 - Agroecological benefits for small holder farms with self-reliant farming system

### 2. Individual abstracts

**Sachin Rautaray<sup>1</sup>**

<sup>1</sup> ICAR-Indian Institute of Water Management, Bhubaneswar, Odisha – 751 023

A self-reliant farming system (SRFS) is envisaged as a system where the requirement of water, plant nutrient, animal feed and energy is produced largely within the farm itself. For achieving the objective of sustainable agriculture, there is a need to develop such a system which will conserve soil, water, and nutrients; and minimize the use of fossil fuels, chemical fertilizers, and synthetic pesticides. *In-situ* water harvesting is useful in achieving self-reliance for water need in farming. There is a need to study the agroecological benefits with SRFS in terms of energy, water and nutrient use, soil health, beneficial soil organisms and reduced toxic chemicals.

### Methods

A field experiments were conducted at the Research Farm of ICAR-Indian Institute of Water Management at Mendhasal, India (20°30' N latitude, 87°48' E longitude). SRFS was developed in 1.6 ha farm (1 ha crop field, 0.4 ha pond and 0.2 ha dyke). On the dyke, two rows of culinary banana were planted with one row of papaya at centre. The field area was used for growing rice in wet season and low duty pulses, oilseeds, maize and vegetables in dry season. Vermicompost (8.1 t) was produced using 24 t agriwastes from farm (10 t cowdung, 10 t leaves and twigs and 4 t crop residues).

### Results

Green manuring with *Sesbania* 15 t ha<sup>-1</sup> (61:10:20 N: P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O kg ha<sup>-1</sup>) and Vermicompost 3 t ha<sup>-1</sup> (19:30:20 N: P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O kg ha<sup>-1</sup>) to rice crop resulted in reduced energy input (39%) and enhanced energy efficiency (57%) vs the conventional practice of using chemical fertilizers. Also, soil organic C, available N and P contents increased by 23%, 39% and 12%, respectively. The fourth season rice crop registered 2.2 times higher earthworm population vs the conventional system. Biopores created by earthworms and enhanced organic matter improved water holding capacity of soil. Increase in carbon stock in soil for the four-year study period was 0.66 Mg ha<sup>-1</sup> year<sup>-1</sup> vs 0.53 Mg ha<sup>-1</sup> year<sup>-1</sup> for the conventional. The system productivity by recycling farm generated agriwastes and run-off water (SRFS) was 18.1 t (11.4 t ha<sup>-1</sup>) rice equivalent yield (2.6 times higher) vs the conventional practice of rice fallow (4.46 t ha<sup>-1</sup>). Also, net return (INR 70141 ha<sup>-1</sup>) and net water productivity (INR 6.94 m<sup>3</sup>) were higher by 2.3 and 2.1 times, respectively.

### Conclusions

The agroecological system of producing food was environmentally and socially sustainable for small holder farms in Asia and Africa.

## **P1.14 - Characterization of smallholder farmers and financing institutions that provide agricultural credit in Rwanda**

2. Individual abstracts

**Nathan Kanuma Taremwa**<sup>1</sup>

Ibrahim Macharia<sup>2</sup>, Eric Bett<sup>2</sup>

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<sup>2</sup> Kenyatta University (KU), Main Campus- Nairobi, Kenya

### **Abstract**

Investments in smallholder farming, particularly in maize and rice production in Rwanda are on the increase, following the recognition of the two cereals as being essential in food security. However, financial institutions are currently lending a lower share of their loan portfolios to smallholder farmers compared to agriculture sector's share of GDP.

This study was conducted to characterize smallholder farmers; and the finance institutions that provide agricultural credit in Rwanda. This study adopted a cross sectional survey design, to study two populations, namely; smallholder farmers and financial institutions. The Eastern, Western and Kigali City of Rwanda, were the study areas. For farmer characterization, stratified multistage sampling was applied. A census of financial institutions in Kigali was made, and the staff therein purposively sampled. The data obtained was analyzed with SPSS version 25, using principal component analysis, and cluster analysis with the K- means statistic. The largest cluster of smallholder farmers, which comprises of 67% of the cases, was made up of households that are constituted by 1-5 people, smallholder farmers that have ever received formal education, having cultivatable land not exceeding a hectare, households where the smallholder farmer is male, and has been a farmer for more than five years. Findings from finance institution the typology revealed that the largest cluster [35%] comprised of institutions that receive between 10,000 – 15,000 applications, institutions that have no loan ceiling for farmers who need credit, and institutions with a loan ceiling of 70% of the expected production. Maize and rice smallholder farmers in the two study areas hail from lowly populated male headed households that own land, with themselves being educated, owning land not exceeding a hectare, having smallholder farming experience exceeding five years, having off farm jobs, and periodically renting land for cultivation not exceeding an acre. Finance institutions in Rwanda receive up to 15000 credit applications from farmers and when given credit to that effect, the majority put no ceilings. The Majority of financial institutions provide no targeted agricultural credit to smallholder farmers.

**Keywords:** *Smallholder Farmers, Financing Institutions, Agricultural Credit, Information Asymmetry, Principal Component Analysis, Cluster Analysis, Rwanda.*



## **P1.15 - A case study of CSR contribution of companies to human development.**

### 2. Individual abstracts

**Siyanda Chonco**

#### INTRODUCTION

##### **Study focus**

This study focused on the Sebenza Blockmakers Project, as NPC's CSR initiative to establish whether it has human development impact in respective communities. It does so by tracking direct project beneficiaries' impact by the project. Human development in this study refers to the UNDP Human Development Report with its broad description including, *inter alia*, different aspects such as health, safety, security.

##### **Problem Statement**

NPC, just like other mining companies in South Africa, employs the term 'Social License' which helps the company gauge whether it feels to have won a blessing to operate from the communities it surrounds. Obviously, gaining this blessing implies an active role NPC must play in uplifting the communities around its operations. In problematizing this question, this study therefore seeks to establish whether the Sebenza Enterprise Development programme is merely another tick-the-box initiative to gain the said "social license, thus a community branding exercise by the MNC; or whether it does substantially contribute to human development in concerned communities.

##### **Objective**

The relationship between CSR and human development is reported to be existent i.e Delta Nigeria. Therefore, the objective of this study was to examine the role of NPC's Sebenza Enterprise Development programme in advancing the lives of people in it concerned communities. A specific focus was drawn to closest communities around the Simuma NPC Plant in the South Coast, Ugu-District in KwaZulu Natal in South Africa.

#### METHODS

A qualitative approach was employed, substantiated by a methodology that allowed for the capturing of the sentiments, views and experiences of the regular participants, funders, partners and mentor of the Sebenza Block-makers project. In other words, it took an interpretivist view to draw deep and holistic understanding of the subject at hand. One-on-one Interviews were held - firstly with the project funder (NPC) to learn of her hopes for the project. Secondly with the project partner, SEDA-Ugu District, to learn of her contributions and the value she feels Sebenza Block-makers added in the economic empowerment in the Ugu District. Thirdly, the mentor to provide a view in the balancing of advice given and application.

#### RESULTS

The study proved that a contribution to human development could be made through CSR. The evolutionary nature of CSR makes a firm promise that things change, strategies are also influenced the by the consciousness of the people in the world. It demonstrated that there's more accountability

now in the world in comparison than before.

## CONCLUSION

To a certain extent, the study demonstrated that CSR could contribute to human development, thus sustainability through a robust monitoring, evaluation and feedback system.

## **P1.16 - Achieving SDG 3 Targets in a Developing Country: Attributions of Health Professionals on Occupational and Safety Issues from a Facility in Ghana**

2. Individual abstracts

**Emelia Ampomaah Panti<sup>1</sup>**

<sup>1</sup> Health Alliance Clinic

Nursing appears to be a hazardous work occupation in the world but little is known about workplace health and safety issues facing the nursing work in Ghana, Asante Akyem Agogo. The basis of this project is that, though nurses do contribute to the health care delivery in Ghana there appears to be serious breaches about work-related hazards among a sample nurses at the Presbyterian Hospital at Agogo.

A quantitative descriptive with longitudinal section study was used to get more information about the characteristics within. A simple random technique with stratified disproportional was used to have a sample size of 102 respondents of all grades and gender. A standard questionnaire was used to gather data. Data was analysed using computerized programme SPSS Version 22.0 and presented in a form of tables.

The results showed that all of the respondents were registered nurses, females (70.6%) and males (29.4%). Most respondents (75.5%) were knowledgeable about hazards in healthcare facility. In addition, 20.6% had not completed hepatitis B immunization, 38.2% had suffered from occupational health hazard, the greatest contributing factor to health was heavy workload with inadequate staff. Most respondents (75.5%) improvised to achieve results other than standard procedure at work.

It is important that goals and targets of Sustainable Development Goal 3 needs to be achieved particularly with the support from the government health policies. As a developing country, Ghana is striving for perfection in health occupational hazards and safety measures should be improved for the staff. The training respondents had received was not adequate to ensure excellent practices. Measures aimed at promoting safety practices and minimising the exposure to hazards such as provision of safety equipment, pre -placement and routine training on safety practices. Also adequate reinforcement of staff capacity and capability through drills in healthcare facilities should be made mandatory. It is important the goal and targets of Sustainable Development Goal 3 needs to be achieved particularly with the domestic support from the government's health policies. As a developing country, Ghana is striving for perfection for an improved health delivery but it is also imperative that occupational hazards and safety measures for staff at medical facilities should be improved.

Key Words: nurse; occupational hazards; SDG 3; Ghana; safety; healthcare

## **P1.17 - Assessment of knowledge and practice on safe handling of cytotoxic drugs among nurses working in oncology unit in public hospitals: Ethiopia**

### 2. Individual abstracts

**Negalign Getahun Dinigde<sup>1</sup>**

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### **ABSTRACT**

**Introduction:** Occupational exposure to cytotoxic drugs is a worldwide concern and the number of staff possibly exposed to the hazardous effect of the cytotoxic drug was more than 5.5 million. Unsafe handling practices have been pointed out in several studies, particularly in countries where access and use of these medicines have recently risen.

**Objective:** To assess knowledge and practice on the safe handling of cytotoxic drugs among nurses working in the oncology units at governmental hospitals Addis Ababa, Ethiopia 2019.

**Method:** An institutional-based cross-sectional study was conducted on 77 nurses in two selected governmental hospitals Addis Ababa Ethiopia from April 1-30, 2019. The censuses approach was used to select nurses. A structured self-administered questionnaire was used to collect data. Descriptive statistics such as mean, standard deviation and percentage were calculated to describe the frequency and displayed in tables. Multiple Linear regression was done to see the association between dependent variables and independent variables. Significant factors were identified based on inclusion at a 95% level at a p-value of less than 0.05.

**Result:** The mean score of knowledge of nurses about cytotoxic drug was  $7.82 \pm 2.22$  and the mean score practice of nurse  $22.1 \pm 5.5$  multiple regression analysis indicated that chemotherapy training was significantly associated with nurse's knowledge ( $p = 0.01$ ) and practice of nurses handling cytotoxic drug ( $p = 0.048$ ) respectively. Working ward and experience were significantly associated with the knowledge of nurses on handling cytotoxic drugs.

**Conclusion and Recommendation:** Most of the nurses didn't take training about chemotherapy handling. This study finding showed that chemotherapy training was significantly associated with knowledge and practice. In-service training regarding chemotherapy handling should be given to nurse's and oncology courses should be incorporated and reinforced into nursing professions curriculums.

## **P1.18 - Helping create and sustain community midwives for quality maternal services: An experience from a project in a rural area of Bangladesh**

2. Individual abstracts

**Shahidul Hoque**<sup>1</sup>

SMA Hanifi<sup>1</sup>, Shehrin Shaila Mahmood<sup>1</sup>, Abbas Bhuiya<sup>2</sup>

<sup>1</sup> icddr,b

<sup>2</sup> Partners in Population and Development

**Introduction:** Bangladesh has been a serious shortage of qualified health workers at all levels. The shortage of nurses and midwifery staffs are particularly acute. In view of this shortage and huge demand for services, informal providers emerged as the largest group. In 1994 icddr,b initiated a community based primary health care project in Chakaria, a remote rural area of Bangladesh in an attempt to ensure quality services to the villagers.

**Methods:** The project involved in training of community selected and locally recruited 13 females as community health workers for disseminate health messages which they did till 1998. In 1998 to 2001 they were trained as Community Midwife in five batches through a residential course of 3 months. On the job training on midwifery also continued by the project physician twice a month. The community midwives provided services from seven village health posts established by the villagers six days a week, performed ANC, home delivery and PNC, refer complicated cases to the physician attending once a week at village health post and other public/private providers. In January 2006 the Midwives were released from icddr,b paid service with an arrangement that icddr,b will only reimburse for safe delivery services they provide to the women from lowest two asset quintiles. From 2009 icddr,b has discontinued reimbursement for the service provided by the Midwives. From 2010 to till date the community midwives were followed through Chakaria Health and Demographic Surveillance System (HDSS). Data from HDSS were used for comparing performance of midwives during 2013 and 2017.

**Results:** As of now, all midwives could sustain at their profession without further support from icddr,b. HDSS data shows the performance of midwives remains same in 2017 compared to 2013 in the area. Mother received assistance from community midwives increased to 39% in 2017 compared to 30% in 2013. Antenatal care coverage of at least 1 visits increases to 77% in 2017 from 66% in 2013. Postnatal care coverage of at least 1 visits increases to 47% in 2017 compared to 36% in 2013. Facility based delivery was 24% in 2017 and 16% in 2013 in Chakaria.

**Conclusion:** The most important factors that contributed in sustaining community midwives in their profession included community involvement in the process, quality of training they had received and services they provide, raising their profile and providing professional and financial support by icddr,b for an initial period of time, continuous linkage with icddr,b physicians for consultation mostly through mobile phone, and clear vision of making them sustainable from the beginning. In settings with acute shortage of health manpower locally recruited females should be trained to fill up the shortage of maternal service providers.

## **P1.19 - COMMUNITY ENGAGEMENT PLANS FOR THE SUSTAINABILITY PHASE OF THE VOLUNTARY MEDICAL MALE CIRCUMCISION PROGRAM**

2. Individual abstracts

**Malizgani Chavula<sup>1</sup>**

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### **ABSTRACT**

#### **Community Engagement Plans For the Sustainability Phase of the Voluntary Medical Male Circumcision Program in Zambia**

**Malizgani Paul Chavula\*<sup>1</sup> and Joseph Mumba Zulu<sup>1</sup>**

University of Zambia, School of Public Health, Health Promotion and Education Department, Ridgeway Campus, Box 50110, Lusaka, Zambia.

#### **Introduction**

The Clinton Health Access Initiative (CHAI) is currently supporting the government of Zambia to develop plans for long-term ownership and epidemiologic impact of voluntary medical male circumcision (VMMC) programs. As donor funding begins to recede, one of sustainability strategies for VMMC is having local stakeholders to take up some of the responsibilities and leadership roles led by or heavily supported by external experts and donors.

#### **Objective**

The overall objective of the study was to develop community engagement plans for the sustainability phase of the VMMC response in Zambia.

#### **Methods**

This was an evidence based approach to developing the plans which adopted a case study design. The data collection process started with document reviews of key VMMC published data such as peer reviewed journal publications, National Operational Plan (2016-2020) and the 2019 Transition and Sustainability Plan for the Zambia Voluntary Medical Male Circumcision (VMMC) Programme. Primary data were collected using interviews (n=34) and FGDs (n=35). The study participants included community stakeholders such as chiefs, headmen, health centre committees, counsellors, teachers, health workers, CHWs and parents in Lusaka, Copperbelt and Muchinga provinces.

#### **Results**

Differences were noted between the rural and urban sites in terms of power and interest rating of stakeholders who could be involved in the sustainability phase of the VMMC response in Zambia. In the urban setting, the majority (100%) of FGDs ranked NHCs, HCWs, Drama Groups, CHWs and Radio/TV as having high power and interest. In the rural setting, the majority (100%) of FGDs ranked club leaders, HCW's and radio/TV as having high power and interest. Thus, from this list, Drama groups only appeared in the urban list while club leaders were only listed in the rural settings.

The strategy proposed to sustain participation of stakeholders with high power and interest, it was suggested that there is need to strengthen the delivery of VMMC services through enhanced integration of VMMC into primary health care services.

Whereas plans for promoting interest and sustaining support among stakeholders with lower interest in VMMC included promoting inclusiveness in the co-production of VMMC through strengthening community engagement in the planning processes; strengthening community involvement, enhancing ownership and promoting community led evaluation process.

## **Conclusion**

Upholding inclusive participation of different stakeholders in all the phases of the VMMC activities, while observing and paying attention to diverse interests and capacities of stakeholders are key to promoting sustainable community VMMC response.

## P1.20 - Exposure to organochlorine pesticides (DDT/HCH) and Risk of Pre-term Birth

2. Individual abstracts

**Madhu Anand**<sup>1</sup>

<sup>1</sup> Dr. B R Ambedkar University, Agra

### Exposure to organochlorine pesticides (DDT/HCH) and Risk of Pre-term Birth

**Madhu Anand** Department of Chemistry, Dr. B.R. Ambedkar University, Khandari Campus, Agra-282002, India

**Ajay Taneja** Department of Chemistry, Dr. B.R. Ambedkar University, Khandari Campus, Agra-282002, India

**Background/Aim:** In India, pre-term birth is the leading cause of death of infants and this number is continuously rising. Pre-term birth is an increasingly prevalent complex condition with multiple risk factors. Only handful of studies has focused on the effect of environmental pollutants such as metals, polycyclic aromatic hydrocarbons and organochlorine pesticides in pre-term deliveries. The aim of this study to analyse the organochlorine pesticide residues in placenta of the females with pre-term and full-term deliveries.

**Methods:** Fifty cases of full-term deliveries and forty cases of pre-term deliveries were included in this case-control study. Residues of organochlorine pesticides like dichlorodiphenyltrichloroethane (DDT) and its metabolites (p,p-DDE, p,p-DDT, o,p-DDD) and isomers of hexachlorocyclohexane ( $\alpha$ -HCH,  $\beta$ -HCH,  $\gamma$ -HCH and  $\delta$ -HCH) were analysed by gas chromatography equipped with electron capture detector.

**Results:** The concentration of all the pesticides were found higher in pre-term cases but the difference were not found statistically significant, only  $\alpha$ -HCH ( $39.75\pm 39.73$ ), total-HCH ( $110.85\pm 120.57$ ), p,p-DDE ( $13.95\pm 12.14$ ) and total DDT ( $19.68\pm 17.55$ ) were found significantly higher in pre-term cases.

**Conclusions:** Prenatal Exposure to these organochlorine pesticides is associated preterm births in Indian Population. Future, multicentre studies are needed in larger population and longer follow-up periods.

**Keywords:** Organochlorine pesticides, preterm-births, placenta, gas chromatography



## **P1.21 - Comparative Performance Analysis of Bamboo-based Activated Carbon by Carbonation and Activation Processes using FTIR and SEM Technique**

1. Sessions

**Christopher Akinbile<sup>1</sup>**

Eunice Epebinu<sup>1</sup>, Olawale Olanrewaju<sup>1</sup>

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Treating wastewater for agricultural re-use has been identified as one major way of increasing crop production to ensure food security. Activated carbon (AC) has been one of the numerous cost-effective inputs for treating wastewater to make it re-usable again and several materials have been used to produce AC with diverse results depending on the desired treated water quality. This study utilized one of the commonest specie of African Bamboo (*Bambusa vulgaris*) to produce AC through carbonization and activation processes using trioxonitrate (V) acid (HNO<sub>3</sub>) and potassium hydroxide (KOH) as activating agents. Bamboo charcoal is a potentially cheaper alternative adsorbent among many carbon -based material such as carbon nanotubes, graphene and others which offers larger specific area and greater pores volume which can perform a greater degree of adsorption, hence its selection for this study The produced AC was characterized using Fourier transform infrared spectroscopy (FTIR) and scanning electron microscopy (SEM) technologies at 300x, 500x, 1000x and 1500x magnification and was later introduced to treat aquaculture wastewater. From the SEM imagery of all the AC produced, KOH's AC at 1500x magnification had largest and most well-developed pore spaces that has maximum capacity to absorb contaminants from wastewater when compared with both HNO<sub>3</sub>'s AC and carbonated charcoal. Similar results were recorded at the FTIR spectra peak analysis which showed that KOH's AC had highest number of functional groups on its surface when compared with carbonated charcoal and HNO<sub>3</sub>'s AC and therefore added more advantage to its adsorption capacity.

## **P1.22 - Assessment of physico- chemical and bacteriological parameters of water of akanyaru river on the border to Burundi and Rwanda**

2. Individual abstracts

**Jean Bosco MUTABAZI<sup>1</sup>**

<sup>1</sup> Jean Bosco Mutabazi, Mr. KABERA Claudien (Msc) 2012, National university of Rwanda, department of Chemistry

The research presents the assessment of physico-chemical and bacteriological parameters of water of Akanyaru river on the border to Burundi and Rwanda. Located in Rwanda, Nyaruguru district, Ngoma Sector at 0773000 of longitude and 9728512 of latitude. Water sample was collected from the river in 19 April 2012. The study was aimed at assessing its quality by comparing to the WHO (world health organisation) standards for surface water.

To verify these parameters, different method have been used: Data on temperature, pH and salinity were obtained in the field by using multiparameter; total alkalinity, total suspended solids, Total hardness and calcium hardness were determined in the laboratory by titrimetric method; for Chloride, fluoride, TN, TP, iron and manganese were Colorimetric method by using spectrophotometer HACH DR/890 Model and for Copper, Zinc, Lead and Cadmium were AAS spectrophotometer 3W varianic model. For bacteriological analysis we have used Membrane filtration and Tube method.

The Result of Akanyaru River indicated that Turbidity (297), TSS(104), ammonia(8.559), Iron(0.84), Manganese(0.131), Copper(0.38), Zinc(0.291) and Escherichia coli at 44°C ( $8 \times 10^1$ ) were above the maximum permissible limit of Rwanda bureau of standard (RBS) for surface water where standard of Turbidity, TSS, ammonia, Iron, Manganese, Copper, Zinc must be 5, < 30, 0.5, 0.3, 0.1, 0.1, 0.001 and  $4 \times 10^0$  respectively. The rest of the parameters measured fall within that limit.

The implication of these results is that the water of this river poses a health risk to the rural communities who rely primarily on it as source of domestic water supply.

This research didn't cover all elements of impact of human activities on wetlands; hence, further research efforts should be directed to the analysis of quality of Akanyaru River on the border to Burundi in different season in order to assess the variation of parameters in the water of the Akanyaru River.

**Key-words:** Surface water, Water quality, RBS standards, WHO standards.

## **P1.23 - Assessment of the Quality of the Densu River Using Multicriterial Analysis and Water Quality Index**

2. Individual abstracts

**Samuel Anim Ofofu**<sup>1,2</sup>

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<sup>1</sup> Department of Civil Engineering, Koforidua Technical University

<sup>2</sup> Regional Water and Environmental Sanitation Centre, Kumasi - Kwame Nkrumah University of Science and Technology

### **Introduction**

The natural resources especially water in the Densu River Basin play significant role in the socio-economic development of Ghana. The purpose of this study was to analyse the water quality of the Densu river using the Water Quality Index (WQI) and multivariate techniques.

### **Methods**

In this study, physico-chemical and bacteriological parameters were measured from surface water samples taken from eight (8) sampling stations in the study area. WQI and multivariate techniques such as hierarchical cluster analysis (HCA) and Principal Component Analysis (PCA) were utilized in the analysis of surface water quality data.

### **Results**

The results indicated that the average surface water of the Densu river was Medium based on the Solway WQI index. The WQI varied between monitoring sites and sampling seasons. The HCA outlined three clusters for water quality analysis based on the land use characteristics of the basin.

### **Conclusions**

The study revealed that six (6) principal components, three (3) spatial clusters were classified. Distinctively, WQI and multivariate techniques were applied for analysing surface water quality in the Densu river basin.

## P1.24 - Catalytic Conversion of Waste Plastics to Hydrocarbon Oil

2. Individual abstracts

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**Introduction:** Plastics are polymers containing mostly carbon, hydrogen, and a few other elements. It contributes significantly to the problem of waste management due to its non-biodegradable nature. Conversion of waste plastics into a value-added product is, therefore, a viable solution.

**Methods:** The plastics are polystyrene (PS), was collected in the form of disposable cutlery, and polypropylene (PP) as drinking straws and each thoroughly washed with tap water and air-dried. The waste plastic materials were shredded to small sizes. The smaller sizes helped to increase the surface area of the plastic in contact with reactants during pyrolysis. Waste plastic materials, polypropylene (PP) and polystyrene (PS) were subjected to thermal cracking with the aid of a laboratory-scale batch reaction. The shredded plastics was loaded with catalyst into the reactor which is the three-necked round bottom flask and was heated in the absence of oxygen, a thermometer was mounted to monitor the temperature, the vapour of the heated plastics pass through the condenser which condenses it into the oil. Eggshell was added as a catalyst, a control was set-up without a catalyst.

**Results:** Hydrocarbon oil was obtained which was analyzed using GC-FID, (5890 series II) Gas chromatograph. Analysis of the oil showed that the mixture of plastics (PP and PS), gave the highest yield. Most of the hydrocarbons were in the range of C<sub>4</sub>-C<sub>12</sub> which falls within the composition of commercial petrol. **Conclusion:** The use of this technology thus proffers a solution to the problem of combating plastic waste in addition to poverty alleviation.

**Poster session 2.**

2021-06-15

16:00 - 16:45

Poster session 2.

## **P2.1 - Legal Opportunities and Challenges for building Inclusive Platforms for Climate Justice Advocates and Communities in Sub-Saharan Africa**

2. Individual abstracts

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<sup>1</sup> Advocates4Earth

### **Introduction**

The season of climate-induced disasters has begun to hit Sub-Saharan Africa with a higher frequency than the past. In 2019 there was massive devastation and loss of life, property, social and human wellbeing as a result of Tropical Cyclone Idai. The most affected parts of Southern Africa were Mozambique, Malawi, Zimbabwe. This is worsened by a stifled operating environment for climate justice advocates and vulnerable communities. The challenges range from repressive laws, financial difficulties, technical challenges, lack of freedom of information and association and the rising divide in global politics.

### **Methods**

The research methodology for the conference paper consists of practical observations by Advocates4Earth, a non-profit environmental law and climate justice organisation as well as legal research and analysis of statutory and treaty provisions, contemporary events, scientific and regional policy documents. The researcher adopts a critical and multi-disciplinary approach to the subject since it encompasses the link between geography, development policy and the law.

The research makes an inquiry into the efficiency and adequacy of inclusive and participatory approaches to deal with climate injustice between environmental advocates and vulnerable communities in the developing world, with a particular emphasis on Sub-Saharan Africa. The research also critiques municipal environmental rights and freedom of association-centric policies and laws for vulnerable communities and environmental lawyers and activists who face institutional and practical challenges due to natural disasters and other impacts of climate change.

### **Results**

The freedom of association and lobby by climate justice advocates and the development rights of vulnerable and disaster-displaced communities are contained in international treaties as well as in municipal laws and policies. The potential for adequate human and environmental rights protection is, however, vitiated by institutional challenges, inefficiency, capacity challenges and systemic corruption. The legal research reflects that recent disasters and global climate injustice have exposed gaps in the protection of the human and environmental rights of communities, despite the otherwise abundance of sources of legal and policy protection.

### **Conclusions**

Sub-Saharan Africa is part of the regions of the world that will continue to face natural disasters such as floods, cyclones, tropical storms, diseases and droughts. These have the potential to drive

people away from their traditional homesteads and communities in flight from disaster vulnerable localities. Without adequate capacity, skills and enabling laws and policies for inclusive work by environmental advocates and vulnerable communities, these natural disasters will continue to pose specific threats to fundamental human and environmental rights.

## **P2.2 - Enhancing Sustainability and Resilience of African Cities through a Water-Energy-Food Nexus (WEF) Approach**

2. Individual abstracts

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The increase in global population and the number of people living in cities has put a lot of pressure on water, food and energy (WEF) resources in cities across the world. In some cities including those in African countries, inadequate access to WEF has already contributed to rationing of water and energy, increased the cost of living and contributed to poverty and inequality. Strategies that have been adopted to address these challenges have so far focused on the different sectors separately. The project being conducted looks at enhancing sustainability and resilience of 2 fast growing African cities, Accra and Kampala, through integrated and participatory knowledge generation, application and governance using a WEF-nexus approach. The nexus approach offers an opportunity to understand and address issues from a cross-sectorial approach. The methodologies adopted for this project allows for co-design and co-production of knowledge by key stakeholders in Accra and Kampala. Data was obtained through review and analysis of available information digital and archival data for the two cities, key informant interviews and focus group discussions. The research evidence generated is being shared through stakeholder engagement forums, meetings, seminars, workshops, and relevant policy documentation.



## **P2.3 - Saving for Dry, not Rainy, Days - Saving and Borrowing Behavior among Agropastoralists in West Pokot County, Kenya**

2. Individual abstracts

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This paper focuses on access to and use of financial services among agro pastoralists in rural, northwestern Kenya. The paper draws upon a dataset spanning 10 years based on two household surveys - the first study conducted in 2007 and the second in 2017. The analysis is unique in its longitudinal approach to opportunities and choices concerning savings and loan behavior among agro pastoralists in Sub-Saharan Africa. The results show a dramatic increase in savings rate between 2007 and 2017, which can largely be attributed to increased financial training. The preferred mode of savings have changed over time, with fewer households saving at home and a large increase in the share who use some form of informal group-based saving organization. The analysis of savings choices show that financial training has a significant positive effect on all savings choices but has the strongest marginal effect on saving in a bank, and that agroforestry extension services provided through the NGO Vi Agroforestry incentivizes/enables households to save and influences them into choosing group-based saving organizations or opening a bank account. Similarly, there was a dramatic increase in credit access during the period, where the share having more than doubled. The results also demonstrate clearly that the economic situation for agro-pastoralist/pastoralist households in rural Kenya is slowly improving, with more households being able to smooth consumption through savings and loans.

Information and knowledge available to households is necessary when designing development cooperation interventions in sub-Saharan Africa, for instance when it comes to improving financial literacy. Awareness and knowledge about savings and credit options, and how to improve the understanding of money and to plan ones' economic situation are undersupplied in these areas. We suggest that this could be further emphasized through enhanced financial support to group based savings organisations from trained advisors.

## **P2.4 - Ecological vulnerability of the Densu River Basin Due to land use change and climate variability**

2. Individual abstracts

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Ecological hazards such as floods, drought and poor water quality remain notable disparaging natural catastrophes of climate variability in West Africa. Associated hazard manifestation is an amalgamation of various factors, which require enhanced knowledge of its spatio-temporal extent. This work aims at the identification and mapping of areas prone to ecological vulnerabilities in the Densu River Basin of Ghana. This research utilized a combination of Analytical Hierarchical Process (AHP) and multicriteria methods (MCM) using dataset such as land use land cover, type of soil, slope, drainage density, rainfall variability and the community distribution in the basin, using Geospatial Technology. Vulnerability mapping models were developed for flooding, drought and surface water quality. The resulting analysis revealed that about 15% of the basin was highly vulnerable to flooding, about 1% was prone to drought and 6% was prone to poor surface water quality. It was revealed that the southernmost part of the basin was susceptible to flooding whilst communities along the tributaries of the Densu river were predisposed to flooding and poor water quality. The study further displayed the extent of vulnerability of the communities within the Densu basin. Uniquely, a combination of AHP and MCM was successfully used to map the vulnerability of a river basin. Therefore, it is now possible to extend the procedures to other river basins for the development of effective mitigating strategies for future hazards.

## **P2.5 - CONSTRUCTED WETLANDS AND BIOSAND FILTERS FOR IMPROVING WATER QUALITY IN WELLS BOMACHOGE BORABU SUB COUNTY, KENYA**

### 2. Individual abstracts

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### Introduction

Utilization of contaminated water sources in rural communities in most developing countries is the cause of many water-related illnesses. Most technologies are too expensive, complex or incompatible to local customs. Constructed wetlands and sand filters have been used individually but not satisfactorily to improve water quality and reduce pollution levels. This study aimed at integrating constructed wetlands and sand filters to improve domestic water.

### Methods

A study was conducted in Bomachoge Sub County, Kenya. The study evaluated the combined effects of constructed wetlands and sand filters on selected water parameters. The experimental set up was a two – level factorial design with three plant-type cultures (*Colocasia esculenta* and *Cyperus esculentus* as monocultures and a polyculture of the two plants) and 4 sand grain sizes (0, 0.5, 1.0 and 2.0 mm) as factors. The collected data was analyzed using SPSS program and a two-way ANOVA.

### Results

Results indicated that plant-type, sand grain size and an interaction between the two factors had significant effects ( $P \leq 0.05$ ) on the 12 microbiological and physico-chemical parameters assessed in this study. Although there were no significant differences in the removal efficiency of *C. esculenta* alone and with the sand filters, the addition of sand filters statistically improved the removal efficiency of *C. esculenta*. A combination of *C. esculenta* and the sand filters had the highest removal efficiency of 98% Total coliforms (TC), 98% Fecal coliforms (FC), 99% *E. coli* (EC), 99% Fecal *Streptococci* (FS), 95%  $\text{NO}_3$  and 97%  $\text{PO}_4$ . A monoculture of *C. esculentus* reduced TC (21%) and FC (9%). Addition of sand filters to *C. esculentus* improved its reduction efficiency by an additional 64% and 60% for TC and FS respectively. A polyculture of *C. esculentus* and *C. esculenta* alone reduced TC, FC and EC by an average 26%, 36% and 31% respectively and further reduced the parameters by an average 54%, 50% and 60% for TC, FC and EC respectively on addition of the sand filters.

### Conclusion

It was concluded that a monoculture of *C. esculenta* was efficient in improving the quality of water to almost 0 cfu/100mls as per WHO standards.



## **P2.6 - Climate Model Ensemble Prediction**

### 2. Individual abstracts

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#### **Introduction**

Regarding current pressing issue of global warming, there are ongoing efforts to limit global mean warming to well below 2 degrees Celsius to avoid dangerous consequences of climate change to the society. Therefore, predicting future climate such as global temperature is important, not only for researchers, but also governments, policy makers, economists, etc. Since climate is a complex dynamical system, there are greater uncertainties associated with each of these prediction models when taken separately. Even though those models work fine for past climate records (for backcasting), their forecasting abilities are questionable. No model can be trusted individually.

One remedy for these problems of predictions by individual models is to use a multi-model ensemble for the task. It is shown that different models give different predictions, but when combined, a range of models may give better characterizations of the uncertainties of future climate scenarios than individual models. However, prominent argument against the combination of model predictions is due to the fact that the models are dependent. Since different research groups share model architectures, software codes, subjective knowledge, etc. their models can have many similarities and similar biases, therefore they are dependent. Combining these dependent models not eliminate prediction uncertainties and inaccuracies.

#### **Methods**

We analyse the context of model ensemble prediction mathematically and interpret their inferences correctly. Even though we use advanced probability theory in our analysis, we present the results in a way that they are understandable to researchers, policy makers, etc. who may be without deep statistical knowledge. Use of statistical causal model makes our task easier.

#### **Results**

Current climate models in ensembles are inherently dependent but they are conditionally independent given the subjective knowledge and data of the modelling context. Therefore, inferences essentially conditional, so interpreted accordingly. Measuring the model dependence and interpretation of it gives an idea of how uncertain model ensemble predictions. We show that current practice is inadequate.

#### **Conclusions**

Climate model ensemble predictions are conditional, meaning that they should be interpreted relative to information used in the modelling process. If there was only a single context observed in the past, which is the case in reality, dependence among models makes no harm for predictions of the future. What mathematician should do is to remove bias in the models, or at least quantify and present it

along with predictions. A clear interpretation of the mathematical result is essential.

## **P2.7 - Sustainable Development in the Developing World: Local Practices and SDGs in Contention**

2. Individual abstracts

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**Introduction**In the contemporary world, the continuous decline in the standards of living, alarming poverty levels, deteriorating healthcare, and environmental concerns have all reached worrying levels. Yet, the international community, international organizations, as well as individuals mainly from the developed world, have shown sustained and concerted efforts to avert the situation. Through multibillion-dollar programs such as the structural adjustment programs of the 1990s, the millennium development goals between 2000-2015, and now the sustainable development goals running from 2015-2030, all indicate concerted attempts towards development. However, despite the endeavors, reports indicate growing national debts, increasing poverty, and environmental concerns in the developing world. Why is this so? This article attempts to contribute to the on-going discussion using Uganda as a case study of a developing country.

**Methods**Contributing to the on-going discussion, this study uses documentary analysis, observation, and questionnaire technic about people's perspectives towards environmental policies by the government. In this case, several government documents, including Acts of Parliament, newspapers, and journals, are analyzed. Different environmentally vulnerable sites such as forests, lakes, and swamps are visited, data taken for analysis.

**Results**Preliminary results indicate a gap between the local community practices and the SDGs. For example, the continuous encroaching on Mabira Forest, for firewood, timber, charcoal, and farmland is against 13 (Climate Action). Additionally, despite stringent government laws, including arrests and burning illegal nets if caught, illicit nets are still used for fishing on lakes such as Lake Victoria and Lake Kyoga, which is contrary to the norms of sustainable development and against SDG Goal 12 (Responsible Consumption and Production), , and 14 (Life Below Water) proposals.

**Conclusions**Results reflect divergencies between the local community practices and SDGs aims. Understanding the norms and dynamics of the local society and how best they can be related to and embedded in the structures and context of the SDGs is essential. In the short run, the community will take them as their own, and guard against any failure. In the long term, the implementation becomes cheaper and community-driven. Also, such an approach can help build capacities for stakeholder collaboration, social learning, and knowledge governance at all levels. The results can be used as a template in other developing countries if sustainability and achieving SDGs are concerned by 2030.

**Keywords:** Local Practices, Mabira Forest, Sustainable Development, Uganda

## **P2.8 - Implementation of Community Adherence Group models to Improve ART Patients Retention in Care in Zambia; Realist evaluation.**

2. Individual abstracts

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### **Introduction**

In 2014, the United Nations Programme on HIV/AIDS (UNAIDS) set ambitious targets of 90 90 90 by 2020 has led to increase in ART enrolments but retention in care has proven to be a challenge. In order to mitigate low retention rates and ensure easy access to ART treatment, Community Adherence (CAG) model was implemented. The study aimed at exploring context and mechanisms which shaped high/low CAG patients retention in two sites.

### **Methods**

Data were collected from two sites of Eastern and Lusaka province of Zambia which had highest and lowest retention rates. A total of eight focus group discussions were conducted from both sites, six were with CAG members and two with Healthcare workers working under CAG. Six individual in-depth interviews were done with Healthcare workers working under CAG. All the participants were purposively selected, patients were selected from CAGs and HWC were selected from those who were working with CAG model. Narratives were audio-recorded, transcribed, and translated to English. Data was managed using Nvivo11 and thematic analysis was used.

### **Results**

Most participants spoke favourably about the practical benefits and what triggered high retention rates of CAGs participants particularly for one site which had high retention rate. What triggered high retention rate included Freed up time, Peer to peer support, HIV knowledge sharing among CAG members. Unintentional disclosure of one's HIV status led to some CAG members dropping out of the groups. On the other hand, participants for the site with low retention rate indicated that conflicts between livelihood activities and access ART through CAG as a major trigger to low patient retention rate. Despite low retention rate, some CAG members indicated that what triggered them to remain in CAG group was HIV knowledge sharing among CAG members and Peer to peer support. Generally, participants reported that CAGs were seen as an effective strategy to improve ART patient retention.

### **Conclusions**

CAG addressed important practical mechanisms to accessing ART services. Freed up time, peer to peer support and HIV knowledge sharing among CAG members triggered improved patients retention in CAG. Despite CAG addressing important practical barriers to accessing ART services, it brought in conflict with livelihood activities in other communities involved hence reduced patients



retention. It can therefore be said that there is no “one size fit all” in ART service provision to improve ART patients retention.

## **P2.9 - Management of Radioactive Waste and Factors associated with Radiation Exposure at University Teaching Hospital and Cancer Disease Hospital.**

2. Individual abstracts

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Given Moonga<sup>1</sup>, Yoram Siulapwa<sup>1</sup>, Adam Silumbwe<sup>1</sup>

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**Background:** Safe disposal of the radioactive waste is a vital component of the overall management of the hospital waste. This study therefore sought to assess radioactive waste management practices and the factors associated with potential radiation exposure at the University Teaching Hospital (the largest referral hospital) and Cancer Disease Hospital (first and only cancer treatment center offering radiation therapy in Zambia).

**Methodology:** The study used an embedded mixed methods design combining quantitative (Primary) and qualitative (secondary) studies. A cross-sectional survey of 106 radiology pharmacists, radiology technologists, nurses, radiographers, radiologists, radiation oncologists, medical physicists, physicians, dark room assistant, physicists, radiotherapist, environmental health officers, cleaners and waste collectors from UTH's radiology department (nuclear medicine unit) and CDH's radiology, radiation oncology and chemotherapy departments and a checklist to determine the waste management practices. Logistic regression modeling was used to identify potential factors associated with radiation from radioactive waste. 18 In-depth Interviews were conducted; 10 out-patients from UTH and 8 bed-siders from CDH. Additionally, thematic analysis of qualitative data was done.

**Results:** According to the bivariate analysis we did not observe statistical significance association between occupational group and radiation exposure; however we noted that workers such as cleaners, waste collectors and radiographers showed that they have increased odd of radiation exposure. According to the logistic regression modeling the factors that are associated with radiation exposure resulting from the management of radioactive waste at both CDH and UTH include; inadequate training in proper waste management ( $p=0.03$ ) and lack of knowledge/awareness on the radioactive waste management guidelines ( $p= 0.01$ ), absence of waste management surveys ( $p=<0.00$ ), radiation leave ( $p=0.04$ ) and lack of radiation inspections ( $P=0.04$ ). The risk estimates were calculated as Likelihood x Severity = Risk assessment score, which ranged between 4 and 12. Qualitatively, it was revealed that the participants were not given safety waste management guidelines and did not practices safety seeking behaviors in radioactive waste management.

**Discussion/Conclusion:** The factors that were associated with potential radiation exposure at UTH and CDH were attributed to the absence of a waste reduction plans or standard operating procedures, waste records and lack of awareness about the health hazards related to health-care waste. Moreover, only 34% reported to have been trained in waste management, and 55% are not aware of international(IAEA) guidelines on radioactive waste management. This was in agreement with the results from the in-depth interviews which said that the out-patients and bed-siders also lacked awareness on waste management practices and safety guidelines to prevent the lower and medium risk reported. Therefore, is need for continued education and training of health care personnel as well as patients and bed-siders in principles of radioactive waste management including improved

policy and infrastructure to enhance radiation safety. Furthermore, the risk estimates suggested lower risk to medium risk radiation estimates; however, this should not be taken to suggest safety as there are always variances in existing environment.

## **P2.10 - labor market Research for inclusive jobs and opportunities in somalia.**

### 2. Individual abstracts

**Mohamed Tahir<sup>1</sup>**

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#### **Labor Market Research for Inclusive Jobs and Opportunities in Somalia.**

- **Background**

Approximately 81.5% of the Somali population is under 35 years' old which do suffer from high level of un-employment and underemployment. According to PES 2014, only 27% of youth are employed 58% male and 42% female. Further, Somalia's National Development Plan (NDP) targets to reduce vulnerable unemployment from 59% in 2016 to 50% by 2019. The complex conflict systems coupled with weak institutions rendered a dis-connect on Federal government initiatives and Federal Member State (FMS) in their legitimacy in youth stabilization and economic inclusion. The purpose of the market and livelihood research was to holistically assess the status of youth employment, market opportunities, and private sector investments in Guriceel, Galmudug State of Somalia.

- **Methodology**

Mixed method data were collected from primary and secondary sources. Stakeholders were grouped into clusters and strata of interest groups. A representative sample of 500 households and youths were interviewed, including key-informants, group discussions, and desk-reviews.

- **Results**

There is stinking unemployment and poverty among the young people, even the few youths that are employed work as casual labourers, the female youths are in particular at more disadvantaged compared to the males because they have extremely limited opportunities. Technical and Vocational Education Training (TVET) institutions are also lacking in the district thereby disfranchising the youths from getting skilled jobs as they do not have professional qualifications.

Despite the available market for skilled labour in the sector of construction, transport, water, agriculture, and livestock, the youths cannot participate due to the limited skills. Less than 30 percent of the youths are enrolled in any kind of TVET related learning places and apprenticeships, but most of them face stiff challenges of tuition, lack of trust, and other essential requirements.

- **Conclusion**

Overall, skills gap among the youths are huge and, there are currently no institutions to spearhead the empowerment of the women and youths to overcome such barriers, the study also found out some times, it is not only skill gap that affects youth employment but also the lack of basic kits to start their own start-ups, it is therefore highly recommended that the youths are empowered through

enterprise based skills building and are provided with gainful start up equipment after school. Credit access through group financing, and training of the youths in entrepreneurship skills, book keeping and financial literacy need to be prioritized.

## **P2.11 - Implementation of Global Action Plan On the Public Health Response to Dementia (GAPD) in Sub-Saharan Africa: Comprehensive Reviews**

2. Individual abstracts

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### **Background:**

Despite the fact that, age is a strongest know risk factor for onset of dementia, and developing countries are projected to have highest number of ageing population, few national dementia strategies have been put in place to address this impending scourge. In 2017, World Health Organization(WHO) released and called for countries to adapt and contextualize the Global Action Plan on the Public health response to dementia, few Sub-Saharan countries have slowly adopted plan. The outcome of the unprecedented increase populations with dementia will be immense. The substantial increase in morbidity and mortality pose a threat to the over stretched health care system and undermine the potential to achieve sustainable development goal (SDGs).

**Methods:** This paper is a view of published and grey literature relevant to Global Action Plan On the Public Health Response to Dementia (GAPD) in sub-Saharan Africa. The overall approach to the review had an exploratory and inductive focus. Articles were categorized around a guiding conceptual framework. Like; A description of structural arrangements and content of national dementia strategy development and normative underpinnings within policy frameworks

**Results:** Nearly all countries within the SSA hadn't developed the national dementia strategy plans. Countries like South African, Ghana, Kenya and Ethiopia had drafts of national dementia strategy, though not yet operationalized. Few countries highlighted some of the parallel targets of GAPD within their national mental health policy and strategy, but it was not comprehensive. Countries where Civil societies that advocate/champion dementia activities were strongly presently were more likely to possess a draft of GAPD.

**Conclusion:** Although there some initiatives for different countries to develop national strategy for dementia plans, there are gaps in the extent of engagement of different stakeholders and how these strategies will be operationalized may limit the impact on addressing the escalating burden of dementia in Sub-Saharan Africa.

## **P2.12 - Impact of social support on psychological wellbeing and quality of life of cancer patients in a Leading Teaching and Referral Hospital in Kenya**

2. Individual abstracts

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**Background:** Available data involving cancer care mainly focuses on the management of physical symptoms and rarely on social support systems, patient's mental wellbeing and quality of life. This study aimed to determine the significance of social support on psychological wellbeing and quality of life of patients with breast, cervix and prostate cancer at Kenyatta National Hospital.

**Materials and Methods:** One-hundred and eighty nine adult outpatients were invited to participate in the study upon giving written informed consent. A semi-structured questionnaire was used to collect patients' socio-demographic characteristics as well as stage and type of cancer. The WHO Quality of Life tool was used to measure the patients' quality of life while their psychological wellbeing was assessed by the Hospital Anxiety and Depression Survey. Multidimensional Scale of Perceived Social Support measured the patients' level of social support. Data were analyzed using STATA software. The level of significance was set at  $p < 0.05$ .

**Results:** More than half of the patients suffered from depression (57.3%) and anxiety (62.3%), had average quality of life scores and received significant social support with the highest support coming from the family members. Level of education and cancer stage were significantly associated with depression, anxiety and quality of life. Social support was significantly associated with depression  $\{\beta(\text{S.e}) -1.56(0.21); p < 0.001\}$ , anxiety  $\{\beta(\text{S.e}) -1.66(0.26); p < 0.001\}$  and quality of life  $\{\beta(\text{S.e}) 4.93(0.57); p < 0.001\}$ .

**Conclusion:** Integrating social support in the management of cancer has the potential to improve patient's psychological wellbeing and quality of life.

## **P2.13 - Role of librarians in making university agricultural research relevant and sustainable**

2. Individual abstracts

**Martha Lyaka**<sup>1</sup>

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### **Introduction**

Agricultural students carry out research in fulfillment of either an undergraduate or a graduate degree. All this research is deposited in the library for access and use by fellow students and researchers. It is believed that the research findings do not reach the people it was intended for mainly the rural farmers. This study investigated the role librarians can play in making university agricultural research relevant and sustainable in Uganda.

### **Methods**

An exploratory approach through an extensive review of related literature and a case study was adopted for this study. The study was guided by three research questions. What are the areas of study, audience, and findings of the university agricultural research? What role can librarians play in making university agricultural research relevant and sustainable? What efforts have librarians in Makerere University Library played in making agricultural university research relevant and sustainable? Research question 1 and 2 was gotten from the literature reviewed while the answer to research question 3 was based on information provided by the researchers being library staff in Makerere University Library.

### **Results**

Major findings reveal that most agricultural research is based on crop variety, food yields, agricultural food prices, climate and weather forecasts, and the research findings are mostly beneficial to small scale farmers. Librarians' role in making the research relevant and sustainable includes translation services, repackaging of the research findings and information literacy mainly targeting the small-scale farmers. There is no systematic infrastructure for the timely dissemination of research findings in an appropriate medium to all stakeholders. In Makerere, librarians have tried to play a role in disseminating the research findings through information literacy, open access repositories, and social media, however, the main audience are students and not the rural farmers who would benefit a lot from the findings.

### **Conclusion**

The study concludes that value chain development is crucial for the success of agricultural research findings relevant and it is therefore imperative that research findings be provided on different areas along the chain. Librarians realize the benefits of agricultural research findings and there is interest and willingness to participate in making the agricultural research relevant and sustainable. There is a need to establish cohesion among stakeholders if relevant and sustainable market information systems are to be developed. The study proposes a model that will hasten the flow of information, increase access to research findings, harness key stakeholders, and create a sustainable system. The study also recommends the establishment of village/parish information centers and display boards to inform farmers about research findings.





## **P2.14 - The contribution of backyard gardens to food security and the development of urban agriculture in Maputo City**

2. Individual abstracts

**Matias Siueia Júnior**

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Urban agriculture in Maputo city is a reality, a fact that has a very marked history. However, despite its level of importance, the area used has suffered enormous pressures from the city's growth dynamics, sometimes even exceeding the capacity of urban planning, since it is an action perpetuated outside the law and combined with the fact that urban growth has surpassed the urbanization plan in a surprising way. In this sequence are born backyard gardens, which is an important and very diverse activity that serves as a means of production of food for own consumption but also for marketing purposes. This study aims to provide a clear understanding of its distribution, work dynamics, contribution to urban agriculture and the impact on the families that carry it out. Fourteen exploratory visits were made to the backyards to perceive the potential of production in the backyards. Although the great potential of backyard horticulture was recognized in these visits, it was found that the technical and management assistance obtained by the families was smaller or discontinued, adding more ignorance of this activity. However, the presence of backyard horticulture in the city remains one of the few activities hand in hand with the development of many families and requires an impetus for discussion and exchange that I thought was about to happen.

**Key-words:** green city, urban agriculture, food security, sustainable city

## **P2.15 - Conventional vegetable crops Preservation Technologies for rural areas**

### 2. Individual abstracts

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Food quality loss commences right from the harvesting, transportation delivery to consumers. Food preservation technologies (FPT) have been used to prevent the senescence of perishable products to the best level. Specifically, technological and loss management practices are indispensable to prolong the shelf life of perishable crops. Herein, we emphasized on the recent status of food preservation technologies in Ethiopia and suggest possible mechanisms for extending the shelf-life of perishable vegetable crops. As per the latest report, a huge post-harvest loss (PHL) which accounts for more than 38% was recorded for tomato fruit in producing regions of Ethiopia. Accordingly, we contemplated investigating the conventional processing technologies which enable us to reduce the substantial loss. Technologies including solar kiosk (SK), cold house (CH), Modified Atmosphere Packaging (MAP), fermentation (FRM) and hot water treatment (HWT) are greatly recommended. These technologies could be employed to process tomato fruit and guideline to start a small business for farmers in rural areas.

## **P2.16 - Silver Nanoparticles Synthesized from *Bacillus subtilis* for Detection of Deterioration in the Post-harvest Spoilage of Fruit**

2. Individual abstracts

**RICHARD KOLADE OMOLE**<sup>1</sup>

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### **Introduction**

In the sub-Saharan African countries, post-harvest food spoilage is a main cause of global food shortage, rather than under-production of food. Tools for the rapid detection of spoilage in fruits such as banana (*Musa acuminata*) would help to alleviate the losses caused by post-harvest deterioration during the storage period.

### **Methods**

In the present study, silver colloidal nanoparticle (AgNPs) solution synthesized using the wet biomass (cell pellets) of *Bacillus subtilis* was applied as a colorimetric sensor for the compound released during banana deterioration. The green synthesized silver nanoparticles solution was confirmed by UV-Vis Spectrophotometer and characterized by Scanning Electron Microscope (SEM), X-ray Diffractometer (XRD) and Fourier Transmission Infrared (FT-IR).

### **Results**

The initial reddish brown colour of the silver nanoparticle solution changed to light brown after four days and finally turned transparent after ten days of exposure to the deteriorating banana. Concurrent analysis of the resulting solution by UV-Vis spectroscopy agrees with our study of AgNPs solution as a colorimetric biosensing agent which displayed specificity and selectivity for 1,2-Benzenedicarboxylic acid, bis (2-methyl propyl) ester that was released during the period of banana deterioration.

### **Conclusion**

The easy detection of crop deterioration for the control of food spoilage will be achieved by applying colorimetric sensor as described in this study.

## **P2.17 - The role of clinical research in educating the health workforce in Guinea-Bissau**

### 2. Individual abstracts

**Bruno Silva**<sup>1</sup>

Amabelia Rodrigues<sup>1</sup>

<sup>1</sup> Bandim Health Project

#### Introduction

The World Health Organization estimates a global deficit of approximately 4.3 million health workers, particularly doctors, nurses and midwives. Guinea-Bissau is among the 36 countries that suffer from a critical need for human resources (less than 23 health professionals per 10.000 inhabitants). The present research investigates the impact of clinical research on health worker's capacity and training.

#### Methods

This is a qualitative study. We interviewed health professionals who assisted in clinical research during the past 5 years and obtained assistance to attend health related courses. The interviews collected data about the professional's technical capacity, clinical practices, work conditions, their qualification for their work and socio-economic variables. Additionally I analysed documents about clinical research that were realized in Guinea-Bissau through North-South cooperation.

#### Results

We realized interviews with 35 health professionals (21 female, 14 male) who participated in clinical research with the Bandim Health Project (Guinea-Bissau) as research assistants and who received subsidies to realize undergraduate or graduate degrees. Among those interviewed, 28 (80%) received support to realize an undergraduate degree in nursing, 4 (11%) a laboratory course, and 3 (9%) a postgraduate course. 24 (69%) stated that they experienced significant improvements in their working conditions within the institutions they ended up in after their clinical trials. 7 (20%) declared that they have progressed in their career after being placed in a health center or a hospital. 29 (83%) stated that the participation in clinical research significantly strengthened their technical capacity and had a positive impact on their careers.

#### Conclusions

We observed a positive impact of the involvement in clinical research on the development of health professionals' capacity. However, the quantity of clinical research in Guinea-Bissau is insufficient to train all health practitioners in this area.

## P2.18 - Prescription of Management by Diametric Class of a forest fragment in Mozambique

### 2. Individual abstracts

**Mario Tuzine**<sup>1,2</sup>

Natalino Calegario<sup>2</sup>

<sup>1</sup> Higher Polytechnic Institute of Gaza, Agriculture division, forestry engineering course

<sup>2</sup> Federal University of Lavras

Multi-level stands are composed of three or more ages that are spatially decelerated, each class becoming a significant part of the settlement, with different species. These forests offer some advantages over the equine forests because they belong to different stages of succession and the different scales of disturbance, however, they have more complex structures, because they develop in different levels of competition. The objective of the study was to test and compare the biexponential model with Liocourt and the other nonlinear models in the estimation of the diametric distribution, posterior management prescription by diametric class, for the stand and the dominant species level. A total of 79 temporary plots of 0.2 ha each were installed. In all plots trees with diameter at breast height greater than 10 cm were measured, 4978 individuals sampled and 3858 trees of *Androstachys johnsonii* were used. The biexponential model presented better estimates of the diametric classes in relation to the Liocourt model, however, Liocourt model was good in relation to the others. The biexponential model was used to prescribe management. It was observed that for the decrease of the basal area the forest structure improved, however, when the species with the greatest dominance in the maximum diameter prescription of 32.5cm with 65% of the remaining basal area was not enough to make the forest balanced.

## **P2.19 - Multivariate analysis of sampling grids and sampling squares in the spatial variability of cacana crop (*Momordica balsamina*. L.) in Mozambique**

2. Individual abstracts

**Egas José Armando**<sup>1</sup>

Simião Gabriel Balane<sup>1</sup>, Marta De Assis Greta Guirute<sup>1</sup>, Jorge Wilson Cortez<sup>2</sup>, Bartolomeu Félix Tangune<sup>1</sup>

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The selection of grid size and sampling square to determine the density and spatial variability of the cacana crop (*Momordica balsamina*. L.), has been quite the opposite, either when sampling isolated factors or combining both. Thus a field experiment was carried out to determine the ideal grid size and sapling square in determining the density and spatial variability of the cacana crop. The trial was carried out in the field fields of local farmers in the village of Pambara, Vilankulo district, 20 m from the main town at the coordinates UTM Longitude 739349,019 and Latitude 7564925,596, in the period from October 2018 to November 2019. Vilankulo district's climate is Aw (dry winter), with an average precipitation of 831 mm. The trial was conducted based on the factorial scheme (Grade factor - A and grid factor - B), based on a completely randomized design, comprising four levels of the grid factor: 10x10 m, 20x20 m, 30x30 m, and 40x40 m grid; four levels of the grid factor: 1x1 m, 0.75x0.75 m, 0.5x0.5 m and 0.25x0.25 m, adding up 16 treatments, 100 replications and a sum of 1600 georeferenced samples throughout the test. The crop density data was collected at the crop maturation phase, which was submitted to the Ryner Joiner Normality test, the Analysis of Variance (ANOVA), to the mean test of Tukey at 5% significance level and multivariate of principal components and cluster analysis. For the determination of the number of main components, was based on eigenvalues > 1, scree graph, while for group selection was based on the Euclidean distance. The results showed that only the size of the grid influenced the density of the culture and the grid 20x20 m<sup>2</sup> with the grid 0.25x0.25 m<sup>2</sup> were ideal. The principal component analysis showed that only two components represent 66.0% of the total variation, and the treatments 20Ax1B, 20Ax0.75B, 20Ax0.5B, 20Ax0.25B should be considered. The cluster analysis showed that the group 20Ax0.75B, 20Ax0.5B, 20Ax0.25B had the shortest distance, being the most recommended treatments. In this way, the combination of the 20 x 20 m grid with the 1x1m to 0.5 m squares is ideal for mapping the spatial variability of the cacana culture.

Keywords: Precision agriculture, principal components, application technology.

## **P2.20 - Gaps and opportunities in partnerships advancing sustainable health at Makerere University in Uganda**

2. Individual abstracts

**Rawlance Ndejjo**<sup>1,2</sup>

Daniel Helldén<sup>2,3</sup>, Charles Batte<sup>2,4</sup>, Roy Mayega<sup>2,5</sup>, Bruna Gigante<sup>2,6</sup>, Charles Ibingira<sup>2,7</sup>, Tobias Alfvén<sup>2,3</sup>, Rhoda Wanyenze<sup>1,2</sup>

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<sup>7</sup> Department of Anatomy, School of Biomedical Sciences, Makerere University College of Health Sciences, Kampala, Uganda

### **Background**

Following the adoption of the Sustainable Development Goals (SDGs), several institutions have moved to align their priorities in line with the 2030 agenda. As a key stakeholder in development, universities ought to assess their progress in contributing to the SDGs so that areas of weakness are identified and strengthened and foster learning across platforms. Health is central within the SDGs and goal 3 aims to ensure healthy lives and promote well-being for all at all ages and has 13 targets. Through the Centre of Excellence for Sustainable Health, Makerere University and Karolinska Institutet conducted a situational analysis to identify gaps and opportunities in partnerships advancing sustainable health at Makerere University.

### **Methods**

Documents review and interviews with key university stakeholders majorly Department or College heads were carried out in December 2019 and January 2020 using prepared guides. Interviews were conducted in English and transcribed verbatim and analysed using thematic content analysis. Both information from document review and interview transcripts were synthesized and presented.

### **Results**

There are several partnerships doing work that advances sustainable health and the SDGs broadly at Makerere University, most of which involve several partners especially universities and are multidisciplinary. In line with previous disease burden and trends, previous work has majorly focused on infectious diseases including malaria, HIV, tuberculosis and pneumonia with less focus on NCDs. This notwithstanding, infectious diseases such as hepatitis B and neglected tropical diseases have not received considerable attention. Considering the SDG 3 targets, works on



environmental health exposures such as air, water and soil pollution and their impact; prediction, mitigation and reduction of global health risks; harmful substance abuse such as alcohol and tobacco control; research and development of safe and affordable medicines and vaccines; and sustainable cities and urban health have been minimal and require attention. Moreover, other cross cutting issues such as social determinants of health including poverty, gender equality and equity, and food, energy and water nexus ought to be equally attended to. Efforts are needed to further translation of research into policy, increase collaboration across all disciplines especially between basic and applied sciences and integration of SDGs in teaching and learning.

## **Conclusion**

The Centre of Excellence for Sustainable Health will create a platform for researchers, policy makers, civil society and industry partners among others to systematically tailor action to bridge identified gaps and harness available opportunities to further holistic contribution to the SDGs.

**Poster session 3.**

2021-06-16

13:15 - 14:00

Poster session 3.

### **P3.1 - to advance towards a sustainable transformation with a low-resource setting**

#### 2. Individual abstracts

**Nazia Sultana**<sup>1</sup>

SM Hanifi<sup>1</sup>

<sup>1</sup> International Centre for Diarrhoeal Disease Research, Bangladesh

**Background:** Providing identity for all, including birth registration is one of the indicators of SDG goal 16. In Bangladesh, a new birth and death registration Act was circulated in 2004 and in 2010, an online birth and death registration was introduced. However, only one fifth children under age 5 are registered in Bangladesh (BDHS 2014). Although it is nationally recommended to complete birth registration within 45 days of birth, only 2.02% children had completed registration in 2015. Whereas, the coverage of BCG, the first vaccine is 98% (BDHS 2017). We examined if the date of birth of children in immunization card is consistent with the actual date of birth.

**Methods:** We used data from the Health and Demographic Surveillance System of Chakaria, a rural area under the Cox's Bazar district of Bangladesh, one of the field sites of International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b). Between 2011 and 2019, we examined the date of birth in EPI register of 17,917 children aged less than 5 years with the record in Chakaria HDSS. Considering a cut of point of 7 days difference with the actual date of birth by HDSS record, we calculated the percentage of children whose actual date of birth was consistent with the date recorded by EPI.

**Results:** Among 17,917 children, 86% (n=15,410) had EPI cards. Date of birth in EPI register was consistent with the HDSS record of 88% of the children .

**Conclusion :** This study suggests that we can use the EPI register as an alternative tool to get more children registered within 45 days of birth. We can translate the EPI card as the birth registration card to reduce cost and avoid duplication of the system to advance towards a sustainable transformation with a low-resource setting. It will help to protect a child against early marriage and child labour and provide with security benefits and necessary healthcare.

### **P3.2 - The Effect of Idiosyncratic and Covariate Shocks on Resilience Dynamics in Ethiopia**

#### 2. Individual abstracts

**Dereje Belete**<sup>1</sup>

Abrham Tsehay<sup>2</sup>, Alemu Azmeraw<sup>2</sup>

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Resilience as a capacity to ensure that shocks and stressors do not have enduring detrimental development effects is the issue of policy debate. Computing resilience capacity, profiling among social groups, and looking for its variations over time and state dependence are of paramount importance for policy making in a country with many risks prone environments. This study employs PCA to compute household resilience, and adopts transition matrices to estimate mobility. Finally, multinomial logit, bivariate probit, random effect and dynamic random effect probit models were estimated to examine the effect of shocks and other drivers of persistence, mobility, change and dynamics. Despite low resilience and less downward mobility, majority of households experience least resilient at least once. Adaptive capacity, income and food access, and stability are relevant pillars in enhancing resilience. The lowest resilience is geographically concentrated in shock prone areas. The empirics also found evidence that households headed by females and distant to the population center are more likely to persist in the lowest resilience terciles, whereas, average share of nonfarm income positively affect likelihood of being most resilient. Resilience is only meaningful in the context of shocks. Contrary to our expectation, input price hikes and flooding reflect reverse causation on change in resilience. Dynamics of resilience revealed that crop damage, loss of livestock, and price rise of food seem to be the major shocks affecting rural households. However, genuine state dependence is found to be less important. The findings specifically suggested that interventions should focus on increasing access and better quality services for the vulnerable groups, and diversifying income sources and livelihoods. Generally, policies designed to enhance resilience should integrate shorter term humanitarian and longer term development goals.

**Key words:** Household, resilience, shocks, dynamic analysis, Ethiopia

### **P3.3 - Exploiting an Ontology Based Chatbot to mitigate Shortage of Agricultural Experts In Rural Parts of Africa**

2. Individual abstracts

**Peter Ochieng<sup>1</sup>**

<sup>1</sup> Taita Taveta University

#### **Abstract**

In developing countries such as Kenya, majority of people rely on agriculture as a source of income. However, in rural areas where 90% of farmers are based, there is still lack of enough technical personnel such as extension officers, veterinary doctors to advise farmers on issues such as diseases affecting their crops and animals, proper matching between soil type and crop variety etc. Due to this, farmers have experienced heavy losses as result of crop failure, death of animals and generally poor yield. These countries however, have experienced tremendous penetration of mobile phones which when properly exploited, can mitigate some of the aforementioned problems. Moreover, experts in agricultural domain have developed extensive ontologies such as Disease Ontology(DO) which can be exploited in the absence of an expert to give a farmer the much needed advice. This research therefore proposes an ontology based chatbot that will have a near natural conversation with a farmer, to help in diagnosing and suggesting treatments for crop and animal diseases, giving advice on the best crop variety for a particular region, crop rotation techniques etc. The chatbot known as SIPROSA was developed with a diverse agricultural ontologies knowledge base, which will be able to help a farmer as a human expert would. SIPROSA can be a veterinarian, an extension officer etc.

The SIPROSA chatbot relies on ontology knowledge base to fetch answers as it converses with a user( farmer). The chatbot takes a user query in natural language to initiate a dialog. The natural language is then converted to SPARQL query using first order logic technique. The SPARQL query fetches answers from the ontology knowledge base. The fetched facts are the intelligently crafted as response to the farmer. The conversation continues until the user terminates it.

Siprosa chatbot was evaluated on its ability to properly diagnose chicken diseases such as Newcastle. It is currently able to attain a precision of 57 % and recall value of 51 % .

From the initial evaluation results, It is clear that leveraging mobile phones and ontologies has the potential of filling the gap of agricultural expert shortage in rural parts of Africa.

### **P3.4 - ICTs a Catalyst to promotion of SDGs and Agenda 2030 in Uganda.**

#### 2. Individual abstracts

**Winy Nekesa AKULLO<sup>1</sup>**

<sup>1</sup> Public Procurement and Disposal of Public Assets Authority

Uganda was one of the first countries to develop its 2015/16–2019/20 national development plan in line with the Sustainable Development Goals (SDGs). The government continues to be committed to achieving the sustainable development goals, most of which line up with the National Vision 2040. The Government estimates that 76 per cent of the SDGs targets are reflected in the plan and adapted to the national context. Information and Communications Technology (ICTs) have played a significant role in the socio - economic development of Uganda and offer vast opportunities to enable the realisation of these goals. ICTs is an umbrella term that includes any communication device (radio, television, telephones, computer hardware and software, satellite systems, etc.) as well as the various services, networks and applications that capture, transmit and display of data and information electronically whether in form of text, imagery or voice. The objectives of the study are to investigate how ICTs are being using to promote the SDGs; to find out the ICTs tools used in promoting the SDGs; challenges faced and recommendations. The sample size was 65 respondents. Random sampling was used in identifying the respondents. Questionnaires was used to solicit responses from the respondents. Data was analyzed using Ms. Excel and presented in tables. From the study, the majority of the respondents were males. A number of ICTs initiatives have been developed that include; ensuring equal rights and access to economic and natural resources as well as technology, property, basic and financial service, Some of the ICT tools targeting different SDGs include; wefarm, ensibuuko, AgroDuuka, Jaguza, M-Farmer, Erignu Mobile, Farm Radio series, m-Omulimisa, EzyAgric, Kudu, that seek to facilitate farmers in Uganda, and the financial ICT services such as Merchant Payments enabling SMEs and larger organizations like UMEME to receive payments, Mobile banking enabling transfers from bank account to mobile wallet among others. However, there is need to establish partnerships with civil society in defining and implementing policies and give it the space to hold the government accountable, listen to scientists and academia. In addition to embracing ICTs.

**Keywords;** *ICTs, SDGs and Uganda*

### **P3.5 - Secondary effects of COVID-19 on one health**

#### 2. Individual abstracts

**Garima Sharma<sup>1</sup>**

<sup>1</sup> Garima Sharma (Department of Medical Biochemistry and Microbiology, Uppsala University, Sweden; Department of Biosciences International Livestock Research Institute, Nairobi, Kenya)

#### **Introduction**

The first case of COVID-19 in India was reported on 30th January 2020. In addition to the public health impacts, COVID-19 severely disrupted agriculture and supply chain activities. The fake news linking the spread of COVID-19 by eating chicken or eggs particularly affected the poultry industry. The study highlights how a food value chain can be affected during a pandemic, thus affecting food security and livelihoods.

#### **Methods**

We assessed the impact of COVID-19 on the poultry industry of India through a review of reports in popular media from February 2020 until June 2020. In addition, we used an online survey directed to poultry farmers across India to understand perceptions of the pandemic and how it affected their businesses.

#### **Results**

A fake video linking the spread of COVID-19 to chickens was circulated on social media causing consumption to decrease considerably, and prices of chicken and eggs reduced. Many poultry farmers started culling the birds on a large scale and retailers gave chickens for free.

The poultry industry of India that suffered a huge loss started regaining sales by the end of April with an increased demand for chicken meat and eggs. By the first week of June, the sales that dropped to 10% rose to 60% and chicken prices skyrocketed from INR 30 per kg to INR 280.

#### Online survey results

A total of 39 participants responded to the survey. 56% noticed a negative impact on the poultry business and 51% believed business dipped because the consumers stopped eating chicken or eggs. 56% tried to make consumers understand that coronavirus does not spread by eating chicken or eggs. 18% culled their birds and 31% had given birds away for free.

#### **Conclusion**

The COVID-19 lockdown hampered agriculture supply chains, with falling prices and labor shortages hindering with the farm operations. Keeping supply chains functioning well is crucial for food security.

The poultry sector was particularly affected by the fake news which disrupted the whole poultry value chain and caused a huge loss to the industry. The consumers easily believed the rumors because poultry in India easily gets a bad reputation for conforming to hygienic standards due to the “wet markets” (private butcher shops). Safeguarding the production, supply chains and public health

during pandemics requires a multidisciplinary approach where teams from various departments work together to prevent, respond, and recover from such events.



### **P3.6 - The Catholic Church and the commitment 'not to make the left behind' in Burundi: impact of the Covid 19 on the care of people with special needs**

#### 1. Sessions

##### **Gertrude Ndayipfukamiye**

Burundi is one of the least developed countries. With a view to implementing the 2011-2020 Program of Action in favor of these countries, Burundi has concluded a treaty - Framework Agreement - to this effect with the Holy See on November 6, 2012. The purpose of this treaty was to facilitate the contribution of the Catholic Church in the implementation of the Programme of Action 2011-2020. The primary objective of this Programme of Action was to enable the least developed countries to graduate from this category (A/CONF.219/3, 2011).

Through its various associations, the Catholic Church, in fact, improves the living conditions of all vulnerable groups. It thus fulfills the ultimate objective of all efforts to accelerate the pace of development in the poorest countries, namely the commitment 'not to leave any people behind'. It pays special attention to those left behind in terms of material comfort, education and health, those who are geographically isolated and future generations.

The Catholic Church takes care of these people more than the State does. We mention here centers for the physically and mentally handicapped; reception centers for children in difficulty such as orphanages, nutritional centers, care and supervision centers for street children; homes for the elderly, schooling for the Aboriginal people, etc. The Catholic Church runs five centers for the physically handicapped: 1 in Gitega, 2 in Muyinga and 2 in Bujumbura; 3 centers for the mentally handicapped, including 2 in Gitega and 1 in Bujumbura; 2 specialized schools in Gitega, one for the blind and the other for the deaf and dumb; and 16 orphanages: 3 in Gitega, 3 in Ngozi, 5 in Muyinga, 1 in Ruyigi, 3 in Bujumbura and 1 in Bubanza.

Our presentation will consist in highlighting the impact of COVID-19 on the survival of these people (health, food security and nutrition situation) and on their living conditions and protection.

### **P3.7 - Understanding antimicrobial use in a contrasting world - On the road to reducing antimicrobial resistance for all**

#### 2. Individual abstracts

Gabriela Olmos<sup>1</sup>

**Isabel Blanco Penedo**<sup>1</sup>, Maria José Hötzel<sup>2</sup>, Miguel Angel Moreno<sup>3</sup>, Sándor Belák<sup>4</sup>, Kerstin Bergvall<sup>1</sup>, Ragnvi Hagman<sup>1</sup>, Ulf Emanuelson<sup>1</sup>, H Buller<sup>5</sup>

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#### **Background**

Global reduction of antimicrobial use (AMU) paves the way to ease the threat of antimicrobial resistance (AMR). Six areas - poverty, hunger, food security, sustainable economic growth, health, inequality and the environment - are interweaved with the AMU/AMR complex problematic. Though the consequences of AMR are true to all, the challenge does differ between countries and species. Thus, effective interventions to reduce AMU require a contextualised understanding of AMU-practices. That requires characterising the materials, competences and meanings that make a practice prevail or not. Such knowledge is scarce in the veterinary sector despite being the highest antimicrobial consumer. This work presents a novel project that capitalises into an interdisciplinary approach to facilitate AMU practice characterisation. By contrasting AMU scenarios across species and countries, we will gain an understanding of the underlying commonalities from where solutions can be built upon.

#### **Methodology**

A mixed methodology framed by the 'social practice theory' is proposed. How best and current practices emerge and are sustained will be investigated using defined clinical scenarios in pets (dogs) and food-producing animals (dairy cattle). The study will be carried out in high (Brazil and Spain) and low (Sweden) user countries to account for AMU differences due to geography, governance and culture. Steps include: 1) Expert consultations to define best practices; 2) Interviews with stakeholders to identify existing practices; 3) Adapted conjoint analysis to broaden results and 4) Workshops to facilitate sharing and reflection of experiences among stakeholders. Triangulation of findings will provide a holistic understanding of AMU practices as complex interactions amid governance, infrastructure, social norms, knowledge and culture.

#### **Results & impacts**

An initial mapping on the stakeholder's roles concerning AMU practices will be presented. We foresee that the knowledge gained via the project's outreach work will support our end-goal of co-

design practice-centred policies for reducing AMU across veterinary sectors and countries. The main benefits would be for the veterinary profession, by aiding the sector in becoming more assertive about their AMU practices, but this will be transferred to the animals - by improved health and to the society and environment - by reducing the risk for AMR.

## **P3.8 - Using Scenario Planning to Accelerate Sustainable Development**

### 2. Individual abstracts

**Steven Gale**<sup>1</sup>

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**INTRODUCTION:** Sustainable development (SD), first introduced officially in 1972 at the Stockholm-based UN Conference on the Human Environment, is nearly 50 years old. Its theoretical origins, however, can be traced back much further to practical handbooks of forestry best-practices dating to the 1700s. Since 1972, SD has been a cornerstone of international development yet much has changed since then. The world we live in today has become more complex, more uncertain, more fast-paced, more networked-focused (economic, political, security) and more concentrated in the hands of just a few countries. What all this means, in short, is that envisioning "just one" sustainable development trajectory for any country is a very risky proposition indeed. One increasingly useful development approach, long used by the private sector, the military, and the intelligence community, to address increasing risk, growing uncertainty, and heightened complexity is called scenario planning (SP). This method systematically looks at existing and emerging trends, and their plausible combinations, to develop a set of likely country-based development trajectories. SP does not generate a single development track about a country's future but rather a set of plausible, high impact scenarios. SP helps countries, along with their international development partners, prepare for the expected AND the unexpected. It reviews current and future aid assets and deploys them to stay ahead of the development curve. Like sustainable development, SP has a long history but it famously grabbed worldwide headlines around when the US planned for potential nuclear strikes by the Soviet Union in the late 1950s. SP was once a luxury reserved for academics; now it is a necessity for development practitioners. It lets aid agencies, implementing partners, host country planners, and community leaders break free of the dated notion that the future will unfold just like the past. SP explores several, not just one, plausible development possibility.

**METHODS:** There are ample SP tools and methods to choose from including back-casting, cross-impact analysis, and trajectory analysis along with a few more decision-focused approaches like the popular Global Business Network (GBN) scenario planning model. After pilot testing a number of these approaches with our field missions around the globe, the GBN model yielded the most appeal, partly because of its simplicity and applicability. USAID adapted and refined the GBN approach and has now deployed it in over 20 field missions in Africa, Eurasia, and Latin America to generate country-specific "drivers of future change". These drivers, in turn, are used to generate a set of high impact development scenarios. While it is possible to generate many scenarios, our pilot results and the development literature, suggest that between 4-7 scenarios are the ideal set to foster operational decision-making. Current and out-year aid programming is then analyzed against these future scenarios to determine how well the development community is prepared if one or more of these trajectories materializes. In concert with this more qualitative SP approach to understand the future, USAID also conducts a series of quantitative analyses of future trends using the International Futures (IFs) database, housed at the University of Denver's PARDEE Center. This highly powerful companion method allows for rigorous modeling and forecasting 5, 10, and 15 years out. SP, using the qualitative GBN model, and IFs relying on a more quantitative model, when deployed together

have been shown to accelerate the goals of sustainable development.

**CONCLUSIONS:** USAID is reorienting its strategies, partnership models, and program practices to achieve greater, more sustainable development outcomes. Scenario planning (SP) is playing a major role in this larger endeavor which we call the "Journey to Self-Reliance". As partners on this journey, SP empowers host country governments to achieve more sustainable results. This in turn, helps countries mobilize more public and private revenues, strengthen local capacities, and accelerate more enterprise-driven sustainable development. To facilitate this reorientation, there needs to be a better understanding of emerging trends. SP is proving to be a standardized analytical tool that USAID operating units can deploy and integrate into their planning processes to support sustainable development. Beyond USAID, SP encourages all partners to have a broader understanding of the complex development landscape, now and into the future, to address critical knowledge gaps.

### **P3.9 - The success of revegetation on tin mined land in Bangka Belitung Islands, Indonesia: governed by social or agricultural technique?**

2. Individual abstracts

**Eddy Nurtjahya Budi Hartono<sup>1</sup>**

<sup>1</sup> Department of Biology, Universitas Bangka Belitung, Indonesia

Tin mining activity in the Province of Bangka Belitung Islands, Indonesia has been operated since the colonial era, in the 17<sup>th</sup> century. After independence, tin mining was monopolized by the central government as the tin mineral was categorized as strategic mineral or class A. The monopoly has been gradually deminished starting 1999 following the change of administration led by massive student rallies in the capital in May 1998 and the effect of regional autonomy in 2004. Tin mining industry has been increased people's income and has been an economic driven for years. Mining left landscape change, pits, marginal land, and horizontal conflicts on mining sites in some areas and between miners and people in tourism spots, especially in Belitung Island. Reclamation and revegetation onshore and coral rehabilitation projects offshore involve stakeholders: regulator, mining operators, academics, politicians, and people. Onshore rehabilitation is much developed than offshore efforts, which some are still research projects. The question is who has more important role in the success of tin mining rehabilitation?

Data of literature studies and observations were collected, and some of them are primary ones.

From the onshore studies and pilot projects which have been conducted and practiced, revegetation on tin mined land somehow can be considered successful. Studies, however, are going on to find potential economic plant species to be grown on tin spoil for the benefit of the people. Re-mining which is majority done by illegal miners, and the low law enforcement in the last several years disturbed the reclamation. Around 2001-2005, the reclamation and revegetation programme were halted by the biggest and public tin mining company. The freedom for mining for the people in many times was falsely interpreted and sometimes become political commodity especially during local election.

Agricultural technique for revegetation has being developed and onshore revegetation in large scale somehow could be considered successful, and many studies are still going on finding best practice for economic species in post tin mining era. Offshore rehabilitation, on the hand is developing and small scale success stories have been reported. Unless there is strong commitment among stake holders, the reclamation and revegetation on tin mined spoils would be never reached, and people would harvest the loss for many years to come.

### **P3.10 - Towards increasing consumption of indigenous ingredient varieties and transformation of livelihoods in Zimbabwe: A viewpoint.**

2. Individual abstracts

**CLOTILDAH KAZEMBE<sup>1</sup>**

<sup>1</sup> CHINHOYI UNIVERSITY OF TECHNOLOGY

#### **Introduction**

There have been insignificant efforts to promote indigenous ingredient varieties so that they contribute to household livelihoods. Yet indigenous ingredients are nutritious, locally available, sustainable and in abundance. More-so, it has been noted by FAO that with the steady increase in human population, demand for food from agro-systems will not be enough as more pressure is exerted on the environment. Gradually indigenous ingredients and their subsequent cuisines have started arousing attention from scholars across the globe in creating food security, sustainability and healthy eating. Utilisation of these indigenous varieties harvested by rural communities is a prospective supply for conventional production (mini-livestock) of protein, and other nutrients required by human consumption. Increasing awareness of indigenous varieties into mainstream diets of Zimbabwe has the ability to increase health and well-being, of the society economically uplifting rural communities whilst alleviating hunger and poverty. Increasing consumption of indigenous ingredient varieties in Zimbabwean formal establishments and households can transform rural livelihoods and build resilience. This viewpoint paper seeks to present the findings of increasing consumption by harnessing indigenous varieties thereby transforming the livelihoods of rural communities in Zimbabwe. This calls for an extensive approach in assessing the consumption patterns, awareness levels and level of variety to present the indigenous varieties.

#### **Methods**

A structured questionnaire and face to face interviews were used to capture details of voluntary participants' demographics, consumption patterns, knowledge and experiences with indigenous ingredient varieties as well as the possible methods to harness indigenous ingredient varieties to promote consumption. Several ways to increase consumption and harness indigenous varieties were mentioned.

#### **Results**

The participants, 87%, indicated that they would consume indigenous food varieties and 13% said they would not. A total of 86% of the participants indicated that they wanted innovative indigenous food variety presentations on the menu to cater for all age groups, from pizzas, cakes, muffins, soup extracts to cookies, shawarma, pies and burgers. The other 14% were not interested at all. Consumers also commented that to increase awareness and consumption of indigenous foods, promoting them through food expos, and increasing their frequency and prominence on the menu both at home and in formal establishments would increase consumption and appeal.

#### **Conclusion**

This viewpoint paper gives insights into how ingredient varieties can be harnessed to increase consumption and resultantly transform the livelihoods of rural communities. It can be noted that increasing the varieties of products that indigenous ingredients are wanted by society. Harnessing these ingredients can increase consumption patterns for Zimbabwe whilst rural communities stand to benefit economically by selling the ingredients and hence reduce poverty and hunger, transforming livelihoods. Such insights could be utilised by formal establishments and households and increase the value chain of indigenous varieties in Zimbabwe.



### **P3.11 - The democratization of Farming technologies through Open-source Digital Farming promotes sustainable rural development in developing countries**

2. Individual abstracts

**Kadeghe Fue<sup>1</sup>**

<sup>1</sup> Sokoine University of Agriculture

The booming of modern technologies has tremendously increased the gap in agricultural production between the developed and developing world. The secret has relied on the adoption of precision agricultural management practices that focus on reducing inputs, conserve the environment, and increase yield. Precision agriculture is using expensive proprietary technologies to sense the requirement of each plant and uniquely manage it. Proprietary technologies can not be adopted in the south due to the economic hardship for most of the farmers. Maintenance may require a farming corporation to establish a dealership in the developing world. However, nowadays, open-source technologies that are publicly available and free to modify and redistribute have been adopted in developing societies. Technological artifacts like designs, drawings, physical operation, source code, and circuit layout are publicly available and free to be used and redistributed. This study investigates the technical and economic advantages of digital farming tools compared to the proprietary. Various open-source tools applied in the developing world are investigated and the profit that they brought to farmers or experimental fields used. Critical contrast and comparison of the tools were also done. The survey was done in Tanzania to compare success stories in the horticultural industry. Simple and publicly available technology that could easily be maintained and repaired by local people in the developing world could promote the adoption of smart farming techniques and hence, increase production. There is a booming of small- and medium-sized entrepreneurial startups taking advantage of the open-source tools to supply state-of-the-art services to farmers at the lowest cost possible. The democratization of digital farming technologies would promote food production to achieve “Zero hunger” of the U.N sustainable development goals and intensify the innovations in the developing world. The developed world governments should encourage researchers who use public funds to freely release innovations to open-source societies.

### **P3.12 - Depression, Anxiety and Associated factors among Covid-19 Positive Diagnosed Patients at Army Force Hospital, Ethiopia.**

2. Individual abstracts

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**Introduction:** Symptoms of anxiety and depression are common psychological reactions to the COVID-19 pandemic. Therefore, monitoring and oversight of the population's mental health problems during such a pandemic is an immediate priority. Assessing anxiety, depression, and associated factors with it are helpful for early psychological interventions. This study aimed to assess the level of depression, anxiety, and associated factors among COVID-19 diagnosed patients in the army force comprehensive COVID-19 center hospital in Ethiopia.

**Methods:** In this cross-sectional study, 150 COVID-19 diagnosed patients were interviewed for the survey in the Amharic language. The Beck's Depression and Anxiety Inventory measuring scale questionnaires were used to measure depression and anxiety of COVID-19 diagnosed patients. Descriptive and multivariate regression analyses were conducted using SPSS version 23.

**Results:** The mean age of the COVID-19 diagnosed patients was  $29 \pm 7.6$  years and Among the total respondent, 92 (61.3%) were males. The overall prevalence of depression from Borderline clinical to severe 84% and anxiety from moderate to severe 86.7%. The multivariate regression analysis showed that being married and divorced was associated with depression and anxiety (AOR=3.61; CI: 3.12, 3.74), AOR=2.60; CI: 1.56,4.36), (AOR=3.12; CI: 0.54, 3.34), and (AOR=1.60; CI: 1.64,3.68) respectively. Fear of death among depressed and anxious patients was (AOR=2.26; CI: 1.30,4.67) and (AOR=4.18; CI: 1.32, 5.33). Poor sleep quality for depressed and anxious Covid-19 diagnosed patients were (AOR =3.56; CI: 1.50,5.44) and (AOR=2.12; CI: 1.42, 3.59). female gender, Fear of re-infection, less family support, loneliness, and Lower oxygen saturation among depressed and anxious patients were positively associated with depression and anxiety.

**Conclusion:** The majority of hospitalized patients with Covid-19 diagnosed were presented with features of depression and anxiety. Female gender, fear of death, fear of re-infection, loneliness, lower oxygen saturation were the vital associated factors with depression, and anxiety of Covid-19 diagnosed patients.

### **P3.13 - Genetic diversity and population structure of lacustrine and riverine populations of African catfish, *Clarias gariepinus* (Burchell, 1822), in Kenya.**

2. Individual abstracts

**George Alal<sup>1</sup>**

James Barasa<sup>1</sup>, Emily Chemoiwa<sup>1</sup>, Boaz Kaunda-Arara<sup>1</sup>, Peter Akoll<sup>2</sup>, Charles Masembe<sup>2</sup>

<sup>1</sup> University of Eldoret

<sup>2</sup> Makerere University

#### **Introduction**

Determining the genetic characteristics of natural fish stocks is useful for conservation programs and locating broodstock sources in aquaculture. This is especially applicable to the African catfish, *Clarias gariepinus*, an important food fish species in the tropics, but whose culture is constrained by poor survival of fry, leading to shortage of seeds.

#### **Methods**

Samples of *C. gariepinus* were collected from 6 different sites in Kenya: 3 lacustrine sites including Lakes Victoria (LV), Kamnarok (LKA) and Kenyatta (LKE), and 3 riverine sites (Rivers Nyando (NR), Sosiani (SR), and Tana (TR)). Fin clips were thawed, macerated, tissue lysed and incubated overnight in a shaking water bath for digestion at 40°C in preparation for DNA extraction. Total Genomic mitochondrial DNA (mtDNA) was extracted from approximately 25mg of fin clip tissue, using the Qiagen DNeasy Tissue Kits (Qiagen GmbH, Germany); following the manufacturer's protocol with minor modifications. Genetic diversity within samples of *C. gariepinus* were quantified as the haplotype frequency ( $h$ ), haplotype diversity ( $H_d$ ), nucleotide diversity ( $\pi$ ), number of singletons or private haplotypes and percentage singletons in DNAsP v6.11.01 (Rozas et al., 2017). Consequently in DNAsP, the distribution and identification of shared haplotypes was performed according to segregating sites. JModelTest v2.1.10 (Darriba et al., 2012) was used to determine the most likely mode of evolution for the mtDNA sequences

#### **Results**

Using 570 base pairs (bp) of DNA sequences from 128 individuals of *C. gariepinus* amplified from hypervariable D-loop control region, 34 haplotypes were discerned, 27 being private. Small number of haplotypes (7) were shared between sites, implying little gene flow between sites. Number of haplotypes was highest in LKE and NR populations ( $n=11$ ) and lowest in SR ( $n=4$ ). Haplotype diversity was highest in LV, and lowest in SR, while, nucleotide diversity was highest in LKA and lowest in LV. Phylogenetic analyses revealed five clusters: Lakes Victoria, Kamnarok and Kenyatta, and Rivers Tana and Nyando, from both maximum likelihood tree and minimum spanning network. This, together with significant  $F_{ST}$  values among the sites imply differentiation into populations. Multi-modal distributions were discerned among some sites (LKA, LKE, NR and TR), suggesting demographic equilibria. Tajima's D values for the sampled populations were negative and significantly different, suggesting stable populations.

#### **Conclusion**

Lakes Victoria, Kamnarok, Kenyatta and River Nyando *C. gariepinus* populations are reservoirs of higher genetic variation, while Rivers Tana and Sosiani populations have lower genetic variation. All populations of *C. gariepinus* had private haplotypes, and Lakes Kenyatta, Kamnarok and River Nyando had higher number of private haplotypes than Lake Victoria and Rivers Tana and Sosiani. The African catfish is an important livelihood resource whose management should be improved, by controlling factors likely to influence genetic diversity such as habitat destruction and fragmentation.

These results indicate genetically distinct populations of *C. gariepinus* that require proper management for sustainable exploitation.

### **P3.14 - TRADITIONAL STATUSES AND LIVELIHOOD UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES: IMPLICATIONS FOR SUSTAINABLE DEVELOPMENT IN NIGERIA**

#### 2. Individual abstracts

**Khadijat Olaitan Olanrewaju<sup>1</sup>**

<sup>1</sup> Osun State University, Osogbo

Rural Nigeria remains a conservative center of the preservation of age-long cultural elements. In this regard, traditional titles and positions remain revered and constitute a distinction among communal people. The importance of rural resource accessibility and involvement in decision making deepens differentiation in the capacity for exploration of livelihood advancement opportunities offered by ICTs. As such, the socio-economic characteristics of traditional title holders and ordinary community members were compared, their varied exposure to ICTs and the utilization for inputs sourcing for their agricultural livelihood activities and products marketing were studied. A multi-stage sampling procedure was employed for the selection of 76 traditional titleholders (rural leaders) and 131 community members from Oyo State housing the ancient Oyo dynasty of historic greatness in Yoruba Culture of Nigeria. The collection of data was done with the use of a validated interview schedule and the analysis was conducted with the combination of descriptive and inferential statistics.

The results showed that more than half (54.2%) of the community members were females while the rural leaders were dominated by males (61.8%). Access to the internet and the use was indicated by some (7.9% and 11.8%) rural leaders while only 8.4% of community members affirmed its availability. The importance of radio for information on agricultural input sources was affirmed as relevant by many of the leaders ( $\bar{x}=1.61\pm 0.844$ ). Also, phones utilization in making connections for farm produce marketing was recorded from many leaders ( $\bar{x}=2.11\pm 1.04$ ) while it is noted as relevant ( $\bar{x}=1.82\pm 0.75$ ) by the majority of the community members. A significant difference ( $t=15.68$ , at  $P\leq 0.01$ ) was found in the utilization of ICTs among the two statuses. More so, the leaders' utilization of ICTs was immensely associated with their external orientation ( $r=0.89$ ) and participation in social organizations (0.58) just as the community members are influenced by their years of formal education ( $r=0.32$ ) and inversely by age ( $r=-0.34$ ).

In conclusion, traditional statuses of rural dwellers opportune differences in their exposure to ICTs and the ability to tap the potentials for their agricultural livelihood in contribution to the development of the rural economy. As such, the sustainability of developmental efforts in rural areas should discern a pragmatic approach to diffuse the gains of traditional statutory titles to the other community members and avert the aggravation of socio-economic and digital divide gap among rural dwellers.

### **P3.15 - Microbiological quality, antibiotic resistance and virulence genes in *Escherichia coli* isolated from chicken samples of Ouagadougou.**

2. Individual abstracts

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#### **Abstract**

**Introduction:** In Burkina Faso, flamed/grilled chickens is very popular and well-known to consumers. The aim of this study is to evaluate the microbiological quality, the virulence gene from *E. coli* isolated of these chickens in Ouagadougou and these antibiotics resistance.

**Methods:** A total of 102 grilled, flamed and fumed chickens were collected in Ouagadougou and analysed, using standard microbiological methods. All *E. coli* isolates were checked with the antimicrobial test and also typed by 16-plex PCR.

**Results:** The mean of Aerobic mesophilic bacteria (AMB) and Thermo-tolerant coliforms (TTC) were found respectively between  $6.90 \pm 0.12 \cdot 10^7$  CFU g<sup>-1</sup> to  $2.76 \pm 0.44 \cdot 10^8$  CFU g<sup>-1</sup> and  $2.4 \pm 0.82 \cdot 10^7$  CFU g<sup>-1</sup> to  $1.27 \pm 0.91 \cdot 10^8$  CFU g<sup>-1</sup>. Forty of samples (38.24%) were unacceptable based on the AMB load. Fifty nine samples (57.85%) were contaminated with TTCs. *E. coli* strains were found to 27.45%. Diarrheagenic *E. coli* (DEC) strains were detected in 21.43% of all samples. Low resistance was observed with antibiotics of Betalacmins family.

**Conclusions:** This study showed that flamed/grilled chickens sold in Ouagadougou could pose health risks for the consumers. Need of hygienic practices or system and good manufacturing practices are necessary to improve the hygienic quality of flamed/grilled chickens and also to avoid antibiotics resistance. Slaughter, scalding, evisceration, plucking, bleeding, washing, rinsing, preserving, grilling and selling, may be the ways of contamination.

**Keywords:** grilled chickens; hygienic quality; antimicrobial resistance; diarrheagenic *E. coli*; Burkina Faso.

### **P3.16 - One Health and One Medicine: A Review of the Literature**

2. Individual abstracts

**Wubshet Asnake Metekia**<sup>1</sup>

<sup>1</sup> Near East University

**Introduction:** The interface between human and animal is recognized as a critical point where zoonotic diseases can emerge and reemerge. These are majorly aggravated by globalization, urbanization, trade particularly animal and their products etc. Hence infectious diseases can therefore happen at the border of human, animal and ecosystem interaction.

**Method:** Recent research papers, review articles, scientific reports and guidelines were assessed and documented as review paper. The main objective of this review is to avail the current scientific information in the area. So, the purpose of this review is to avail current scientific information and areas of cooperation between the two medicines, so as to take action in one health and one medicine agenda.

**Result and conclusion** Most of the scholarly look the thought and definition of health at three angles; i.e. at individual level, population or group level and the ecosystem level. In line with this the one health approach considers human, animal and environmental health, and currently it is worldwide recognized approach. One health considers so many fields, due to this it is known as multidisciplinary area, and promotes good health for all creatures (humans, animals and the surrounding ecosystem) because one cannot live alone without the interaction of another. Generally health for all motto is recognized throughout the world even if it requires multi-sectorial unity and collaboration, responsible team and/or institutional rearrangement, planning and prioritization of issues. Finally for effective implementation there should be strong innovative biomedical research, policy and institutional setting, university curricula rearrangement, continuous advocacy, awareness creation and education of the population or community and implementers.

**Keywords:** - *Human medicine, veterinary medicine, zoonotic diseases, one health and one medicine*

### **P3.17 - Evidence-based policy ideas and solutions in response to the pandemic.**

1. Sessions

**Andrea Ordonez**

I am reaching out to explore possibilities to collaborate for the upcoming DevRes2021 Conference at Umea University, Sweden.

[Southern Voice](#) is a network of 51 think tanks across Africa, Asia and Latin America devoted to bringing research from the Global South into international debates on sustainable development.

With the outbreak of COVID-19, we launched a call for evidence-based policy ideas and solutions in response to the pandemic. This call built on the ongoing work among think tank members of Southern Voice (please visit our [Digital Knowledge Hub](#)). It also sought to enable cross-country and regional learning to enhance the work of Southern scholars at the global level. The call for research focuses on three thematic areas: *reducing the social impact of the crisis; economic and fiscal recovery and lastly; accountable and inclusive institutions.*

After a competitive selection process, [six selected teams](#) are producing papers with their evidence-based ideas or reforms adequately backed by research and analysis. The papers will form part of Southern Voice's Occasional Paper series.

We are keen to explore synergies between Southern Voice and Umea University, particularly on the special call for abstracts on COVID-19 with links to the SDGs. We see this as a window of opportunity to strengthen dialogue and research on the overall development agenda. The ongoing research is by teams uniquely positioned in the Global South. It combines theory and innovative methodologies in challenging research environments to explore how the pandemic has impacted on different topics on developing country contexts.

We are interested in arranging a call to exchange ideas on the different avenues for collaboration.



### **P3.18 - Epidemiology and Clinical Manifestation of COVID-19 patients in Uganda.**

2. Individual abstracts

**David Kasibante**<sup>1,2</sup>

Isaac Ddumba<sup>1,3</sup>, Stephen Joloba<sup>2,3</sup>

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<sup>2</sup> Community Health Access Foundation Uganda

<sup>3</sup> African Research Center 4 Ageing & Dementia

**Background:** Close to 20,000 cases of infections and 197 cases of COVID-19 have been documented in Uganda. Nevertheless, the characteristics and risk factors for severely hospitalized COVID-19 cases in Uganda have not been described.

**Methods:** data extracted had demographic, laboratory and outcome data from medical records of RT-PCR confirmed COVID-19 patients admitted in six COVID-19 treatment centers Uganda, between March and October, 2020. We applied cox proportional hazards regressions to ascertain factor related to institutionalized COVID-19 treatment center mortality.

**Results:** Data from 642 COVID-19 patient was available. The median age was 38.5 years (IQR-28-56), with 423 (65.8%) males. On admission, 228 (35.5%) were symptomatic. The commonest symptoms were cough (423, 65.8%), loss of appetite (153, 23.8%) and fever (148, 23.1%), loss of appetite and smell (279, 43.5%). Comorbidities were reported in 278 (43.3%), with diabetes and HIV documented at 128 (19.9%) and 116 (18.9%) respectively. 24 (3.7%) were admitted to Intensive Care Unit (ICU), for a mean of 9.6 days, 12(1.1%) were ventilated with mean of 10 days. The risk of death increased with age (hazard ratio (HR) 1.28(95% CI 1.28-2.08) for persons > 60 years compared to those < 60 years old; having co-morbidities (HR 1.89 (2.34 (1.52-2.34); and among males (HR 1.52 (1.23-2.32) compared to females. Elevated white blood cell counts was associated with higher risk of death.

**Conclusion:** we documented that risk factors for mortality may provide the stratification for high risk patients in Uganda.

### **P3.19 - Antiviral Drug Candidates Targeting NSP13 Helicase of SARS-CoV-2: an in-silico analysis**

2. Individual abstracts

**Mohammad Mamun Alam<sup>1</sup>**

Dipok Kumer Shill<sup>1</sup>, Muntasir Alam<sup>1</sup>, Mohammad Enayet Hossain<sup>1</sup>, Mohammed Ziaur Rahman<sup>1</sup>, Mustafizur Rahman<sup>1</sup>

<sup>1</sup> icddr,b

**Introduction:** The ongoing pandemic of Coronavirus Infectious Disease (COVID-19) leads to a health emergency call by the World Health Organization (WHO). Still, people around the world are suffering from the infection of SARS-CoV-2, a positive sense RNA virus under the Betacoronavirus genus Coronaviridae family and the causative agent of COVID-19. Till now, no effective vaccine is available. However, the FDA approved a drug called Remdesevir targeting RNA-dependent RNA Polymerase (RdRp) for emergency use to treat the COVID-19 infected patient. Still, its dismal performance leads us to search for other drugs of the same function. Along with RdRp, Helicase, an enzyme encoded by the NSP13 gene, plays a vital role in the genome replication cycle of SARS-CoV-2. The focus point of this study was to identify the drug compounds which hinder the life cycle of SARS-CoV-2 by inhibiting the function of the helicase enzyme.

**Methods:** Amino acid sequences of helicase of global SARS-CoV-2 were retrieved from the NCBI database. A phylogenetic tree was reconstructed from the sequences of different parts of the world. BLASTp was used to determine homology between viral and human Helicase. We used the amino acid sequence of helicase for homology modeling as well as a search of drug compounds from Drug Bank 10. *In silico* molecular docking using Autodock vina 1.1.5 tools were used to determine the binding efficacy of these drug compounds with Helicase. As well as the binding image was demonstrated using Pymol view Z3D.

**Results:** No homology was found between viral helicase and human proteins. We found eight drug compounds including Remdesevir, reactive against helicase. Among them, seven compounds showed exothermic binding energy. The highest exothermic energy, 13.4 Kcal/mole was seen for S-[5-(TRIFLUOROMETHYL)-4H-1,2,4-TRIAZOL-3-YL] 5-(PHENYLETHYNYL) FURAN-2-CARBOTHIOATE followed by 13.1 Kcal/mole for 2-[(2,4-DICHLORO-5-METHYLPHENYL) SULFONYL]-1,3-DINITRO-5-(TRIFLUOROMETHYL) BENZENE.

**Conclusions:** These features should prompt the research forward to the next step to confirm the significance of these compounds as suitable drug candidates to combat COVID-19.

### **P3.20 - Assessing the surge capacity of hospitals in Ugandan health care systems in managing the COVID-19 pandemic.**

2. Individual abstracts

**Shebaronah Ahumuza**<sup>1,2</sup>

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<sup>3</sup> Community Health Access Foundation Uganda

<sup>4</sup> Mukono District Local Government

**Introduction:** The increasing cases of COVID-19 poses a threat on the over strained health care systems, especially in developing countries. Health care systems might need a surge to accommodate the ever increasing number of COVID-19 cases. Hence, we assessed the Ugandan healthcare systems' capacity to accommodate the surge in the increased caseloads, which might need hospital and critical care due to COVID-19.

**Methods:** We assumed that 2% of the Uganda population get symptomatic infections by COVID-19 based on modelled estimates of Uganda and ascertained the healthcare systems surge capacity for COVID-19 under three transmission curves scenarios; 6, 12 and 18 months. We estimated four measures for hospital surge capacity; ICU bed surge capacity, ICU bed tipping point, hospital bed capacity and hospital bed tipping point. Estimates were made for national level and 132 district local government.

**Results:** The capacity of Ugandan health care system to accommodate the increasing numbers of cases due to COVID-19 is hindered by the lack of oxygen. Only 9 in 20 (46%) of hospital beds had oxygen supply. The hospital bed surge capacity varied across districts. Under the 12 months transmission scenario, the proportion of hospital with available beds, that would accommodate COVID-19 cases varied from 4% in Karomoja district, to 84% in Kampala district. The Ugandan healthcare systems faces a critical gap in ICU beds and ventilator capacity. Only 48 out of 132 districts had at least 1 ICU unit. An additional 2,247 bed and 2,756 ventilators (12 months transmission curve) will be needed to accommodate the caseloads due to COVID-19.

**Conclusion:** The capacity for Ugandan healthcare systems to manage to manage the COVID-19 caseloads is minimal. There need to address the sub-national variations in bed surge capacity, ICU units and ventilators within the Ugandan healthcare system.

### **P3.21 - The Booming of Global Aquaculture and Veterinary Drugs Residues in Cultured seafood Products**

2. Individual abstracts

**Wubshet Asnake Metekia**<sup>1</sup>

<sup>1</sup> Near East University

**Introduction:** aquaculture is the first and rapidly booming green food producing industry in the world and globally accounting nearly half of all seafood production and produces above 100 million tons of farmed fish and other sea food products. In line with this globally per person fish consumption is also increasing, currently it's above 20 kg per year. The objective of this review is to update the scientific community in the area of the aquaculture industry and the usage of veterinary drugs residues in cultured seafood products.

**The method** of the work is assessing different recent research papers, review articles and scientific reports and documented as review paper.

**Result and conclusion:** this production is attained by the intervention of input technologies including veterinary drugs and antibiotics for the commercialization and intensification of the culture system and to combat production related diseases, due to this the aquaculture industries globally booms and compete with the natural harvested fishery products from seas, lakes, rivers and other small water bodies. However in recent years different countries detect the presence of misused, unsafe food additives and/or forbidden and unapproved veterinary drugs including malachite green, nitrofurans, fluoroquinolones, gentian violet and others in aquaculture harvested eel, frog, tilapia, shrimp, prawns and other aquatic species and their products; those stuffs may be toxic, allergenic or carcinogenic and/or may cause antibiotic confrontation and resistance in pathogens that affect humans, because of this the public health concerns are very high and countries are forced to bane and cull those products and set different law/regulation, regulatory authority, manpower capacitating, laboratory facilities. Beside this aquaculture producing countries should flow good manufacturing and processing procedure, traceability system, bilateral agreements between the aquaculture producer and importer countries and strengthening their importation system. Hence they will save the public health from risk of aquaculture harvested veterinary drug residues of fish and other sea food products.

**Keywords:** *Aquaculture, fish and other sea food products, public health & veterinary drugs residues*

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