



UNIVERSITY OF DAR ES SALAAM

**3RD ANNUAL CONFERENCE ON RESEARCH AND INCLUSIVE
DEVELOPMENT**

*Harnessing Research and Innovation for Sustainable and Inclusive
Development in Tanzania*

PROGRAMME

**Saint Gasper Conference Centre, DODOMA
11th -12th November 2021**



Hon. Prof. Kitila Mkumbo
Minister for Industry and Trade
GUEST OF HONOUR

Honorable Professor Kitila Alexander Mkumbo (MP) is the Minister of Industry and Trade, and a Member of Parliament for Ubungo Constituency. He is a renowned and seasoned academician and politician. He has worked for the University of Dar es Salaam rising from Assistant Lecturer to Professorial rank in about 11 years. Prof Mkumbo has participated in more than seventeen international academic and professional conferences and published extensively in his area of specialization. Prof Mkumbo is a member of more than seven professional associations and has worked as professional consultant with various institutions including UNICEF, UNESCO, AMREF and TACAIDS. In terms of political appointments, Prof Mkumbo was appointed the Permanent Secretary- Ministry of Water from 2017-2020; Minister- President's Office (Investment) 2020 - 2021 and Minister- Ministry of Industry and Trade 2021 - to date. All this makes Prof. Kitila to have a unique and rare mix of being a researcher, a teacher and a politician.



Mr Anders Sjöberg
Ambassador, Swedish Embassy



Prof. William A.L. Anangisye
Vice Chancellor - UDSM



Prof. Bernadeta Killian
Deputy Vice Chancellor (Research) - UDSM

PREFACE

The University of Dar es Salaam has various fora through which researchers use to disseminate their research findings to wider national and international communities. One of such fora, which brings together researchers, policy makers, practitioners and other stakeholders, is the Annual Conference on Research and Inclusive Development. These conferences provide avenues and platforms for the University of Dar es Salaam (UDSM) to demonstrate its research results and products geared towards addressing development challenges. The first Conference on Research and Inclusive Development was held in 2018 whereas the second conference was held in 2019. However, in 2020 the conference could not be held due to the COVID-19 pandemic crisis.

The 3rd Conference on Research and Inclusive Development will be held at St. Gaspar Hotel, Dodoma from 11th to 12th November, 2021. The main theme is ‘Harnessing Research and Innovation for Sustainable and Inclusive Development in Tanzania’. Like the past two conferences, the 3rd Annual Conference on Research and Inclusive Development aims at disseminating research findings of various research projects undertaken by UDSM staff and students benefiting from the bilateral research cooperation between the University of Dar es Salaam and 10 Swedish research institutions through UDSM-Sida programme.

This document presents conference road map with details of events that will take place during the two days. It also includes a brief account of the UDSM-Sida programme and its twelve sub-programmes as sub-themes for the conference. The conference will be organized in parallel sessions divided in line with the research sub-programmes focusing on Research Management, Engendering Agribusiness Entrepreneurship, Sustainable Tourism and Food Security. Other sessions include Molecular Bioscience, Applied Marine Sciences, Smart Energy Systems, Mathematics, Water Resources and Sanitation Management. The research findings under these sub-themes will be presented for in-depth discussion and deliberations.

On behalf of the University of Dar es Salaam and our partner Sida, I would like to thank all involved researchers for their contribution to the success of this conference. I would also like to thank all the units taking part in the exhibition of various products of the University of Dar es Salaam and all participants to this conference. It is my sincere hope that the presented research results and products shall stimulate debates and insightful deliberations during the 3rd Conference on Research and Inclusive Development in Tanzania.



Prof. Bernadeta Killian
Deputy Vice Chancellor – Research



60 YEARS OF THE UNIVERSITY OF DAR ES SALAAM 'A Colourful Diamond Jubilee: 60 Years of Academic Excellence'

Background of UDSM

The University of Dar es Salaam (UDSM), the oldest and premier public university in Tanzania will be celebrating its 60th Anniversary later this year. It was established on 25th October 1961 a few months before independence as the University College Dar es Salaam (UCD), an affiliate college of the University of London. It was temporarily hosted in the premises belonging to Tanganyika African National Union (TANU) located in Lumumba Street, Dar es Salaam from its establishment up to 1964 when it was moved to the current location at the Mwalimu Julius Nyerere, Mlimani Campus. At its inception, it had only the Faculty of Law, with 14 students among them one female, Julie Manning (3 Ugandan, 4 Kenyans and 7 Tanzanians). Two Tanzanians dropped in the second and third year, thus 12 students graduated in the 1964 maiden graduation ceremony. In 1963 it became a constituent college of the University of East Africa together with Makerere University College in Uganda and Nairobi University College in Kenya. UDSM became a fully-fledged University on 1st July 1970 through Act No. 12 of 1970.

Achievements in the Past 60 Years

Ever since, UDSM, through its key roles of teaching, research and public service, has grown in terms of student intake (both undergraduates and postgraduates); academic units; research capability; academic programmes; and internationalisation. It has two constituent colleges: the Dar es Salaam University College of Education (DUCE) located in Dar es Salaam and the Mkwawa University College of Education (MUCE), located in Iringa. There are also seven campus colleges, seven schools and five institutes hosting numerous academic departments covering a wide range of programmes, making it a comprehensive university. The academic programmes offered lead to the award of certificates, diplomas, and undergraduate and postgraduate degrees. A total of 370 programmes including 17 taught PhD; 99 PhD by thesis; 142 Masters; 10 Postgraduate; 92 undergraduate; 5 certificates, and 6 diploma are offered in various academic units. The number of students admitted has been increasing steadily, reaching 43,307 in 2020/2021 academic year. Female students are 19,785, constituting 45.7 percent of all students, and more efforts have been underway to increase this ratio. It is very pleasing to note that each year UDSM receives an increased number of applications of students interesting in joining its various programmes, in many cases more than twice the number that can be admitted. Apart from delivering professional advice to public and private institutions, UDSM has continued to share its knowledge and services with the Tanzanian public on issues ranging from research, innovation and industrial development to environmental conservation and application of new technologies. To date, the university has a total of 584 on-going research projects. Among these projects is the UDSM-Sida Cooperation Programme supported by the Government of Sweden under bilateral arrangement between Tanzania and Sweden.

UDSM Vision 2061

At its Golden Jubilee in 2011 UDSM inaugurated its Vision 2061, a blueprint charting the way for its future development. Central to its contents is the expressed desire to: become a leading centre of intellectual wealth; turn the University into an e-learning institution in terms of the availability and wide use of modern Information Technology; expand and modernize postgraduate training programmes and activities; make major advances in research planning and management; internationalise teaching programmes and learning experiences; and establish strong alumni networks in order strengthen their solidarity with the university. UDSM has strategically set different goals, plans and measures to achieve that vision. These include increasing number of postgraduate outputs, which led to introduction of a mid-year graduation ceremony in 2019; improving research outputs by setting aside enough funds in the research and innovation budget from internally generated sources; set a number of scholarships like Merit Scholarship to cater for various categories of students wishing to pursue their undergraduate and postgraduate studies; and set budget for overhaul/repair/construction of research, studies and service infrastructures. There have been several other reforms as part of those initiatives including establishing research chairs, establishing a third deputy vice chancellor in charge of research; professor emeritus and increase research/academia-industry collaboration.



1964



2021

3rd Annual Conference on Research and Inclusive Development

Harnessing Research and Innovation for Sustainable and Inclusive Development in Tanzania

The conference brings together researchers, policy makers and other stakeholders from industries and academia to support R&D activities and knowledge transfer by disseminating policy briefs and reinforce research partnerships and collaborations. The conference aspires to increase University visibility through dissemination of research findings and showcase innovative products/methods generated from UDSM-Sida Programme in the area of Engendering Agribusiness Entrepreneurship, Sustainable Tourism for Inclusive Development, Food Security, Molecular Bioscience, Marine Science and Aquaculture, SMART GRID, Sustainable Water Resources Management, Safe Drinking Water, Sanitation Management and Mathematics in Higher Learning Institutions. The content for this conference is divided in three main categories:

▶ Policy Briefs

A total of 28 policy briefs aiming at linking scientific research findings and policy implications will be presented. This session will generate sufficient analytical capacity and research-based knowledge and technological innovations for provision of appropriate and immediate valuable outcomes to relevant stakeholders (policy makers, industry, civil society etc.) for the purpose of addressing socio-economic problems and promoting sustainable and inclusive development.

▶ Academic Papers

The conference will comprise of 88 research papers presented in parallel sessions in line with the sub-themes. Participants will have the opportunity to contribute to the presentations during the conference aiming at knowledge sharing and dissemination.

▶ Exhibitions

Exhibitions are convened to showcase innovative products/methods resulting from research activities mainly from UDSM- Sida funded programme. Directorates of the University of Dar es Salaam will also exhibit services offered. Exhibitions will also include Ardhi University, MUHAS and COSTECH Sida-funded research programmes.

Conference Programme

DAY ONE: THURSDAY, 11TH NOVEMBER 2021

(a) OPENING CEREMONY

Dean of Ceremony: Dr. Richard Kimwaga Chief Rapporteur: Dr. Kwame Ibwe		
TIME	EVENT/ACTIVITY	RESPONSIBLE PERSON
08:30 – 09:00	Registration	Secretariat
09:00 – 09:10	Welcoming Remarks	Prof. William Anangisye Vice Chancellor-UDSM
09:10 – 09:20	Remarks from the Ambassador	Mr Anders Sjöberg Ambassador, Swedish Embassy
09:20 – 09:30	Remarks from the Ministry of Education, Science and Technology	Dr. Leonard Akwilapo PS –Ministry EST
09:30 – 10:00	Official Opening by the Guest of Honour	Hon. Prof. Kitila Mkumbo Minister of Industry and Trade
10.00 -10:15	Recognition of UDSM-Sida Milestones	Prof. Bernadeta Killian DVC-Research, UDSM
10:15 – 10:20	Vote of Thanks	Prof. David Mfinanga DVC-Administration - UDSM
10:20 – 10:25	Group Photo	All
10:25 – 10:30	Guest of Honour Visiting Selected Pavilions	Prof. William Anangisye Vice Chancellor-UDSM
10.30 – 11:00	Health/Tea Break	All

(b) PARALLEL SESSIONS

Bridging the Gap: Connect Research to Policy					
PRESENTATION OF POLICY BRIEFS					
Parallel Sessions					
Time	Parallel Session I	Parallel Session II	Parallel Session III	Parallel Session IV	Parallel Session V
11:00 - 13:00	Sub-theme: Water and Sanitation Venue: Main Hall Chairperson: Chairperson of Social Services and Community Development Parliamentary Committee Rapporteur (Amour Seleman)	Sub-theme: Strengthening Research Management at High Learning Institutions Venue: Masai Hall Chairperson: Prof. Benadetha Killion Rapporteur (Morry Kijonjo)	Sub-theme: Sustainable Tourism Venue: Serengeti Hall Chairperson: Chairperson Industrial Trade and Environment Rapporteur (Theresia Busagara)	Sub-theme: Food Security and Agribusiness Venue: Fr. Vicent Hall Chairperson: Chairperson of Agriculture, Livestock and Water PC Rapporteur (Aneth David)	Sub-theme: Aqua & Biotechnology Venue: Lounge Hall Chairperson: Chairperson Land, Natural Resources and Tourism PC Rapporteur (Modester Damas)
11:00 – 11:15	Inclusive Agricultural Development and Water Resources Management in the Kilombero Valley (KV) River Basin (Steven Lyon, Joel Nobert, Lowe Börjeson, Regina Lindborg, Emma Liwenga, Johan Berg, Noah Pauline, Madaka Tumbo, Subira Munishi, Edmond Alavaisha, Victor Mbande, William Senkondo)	Participants' Governance in Research and Innovation in Tanzania: Their Perceived Roles, Functions and Ownership (Montanus C. Milanzi, Mwahija M. Kisoma and Shauri O. Kinunda)	Potential Wildlife Tourism Products in the Selected Lakeside Regions (Wineaster Anderson, Cuthbert L. Nahonyo, and Ruth H.J. Lugwisha)	Gender in agricultural sector in Tanzania: an unfinished ancillary business? (Mesia Ilomo, Lettice K. Rutashobya, Johanna Bergman Lodin, Esther K. Ishengoma, Katarina Pettersson)	The potential of plants-derived natural products in Managing neurodegenerative disorders. A case study of Compounds from Tanzanian medicinal plants (Flora Stephano, Angela A. Siima, Joan J.E. Munissi and Stephen S. Nyandoro)
11:15 – 11:30	Discussion (All)				
11.30 – 11.45	A spatial data-driven approach to the provision of clean and safe drinking water in Tanzania (Julian Ijumulana, Prosun Bhattacharya, Felix Mtal, Fanuel Ligate, Regina Irunde, Vivian Kimambo)	Strategic Innovation Management and Research Performance Among Academic Staff in Tanzania's Technical Higher Education Institutions (CRN, Charles Raphael)	Potential Cultural Tourism Attractions in Geita, Kagera and Mwanza (Theresia Busagara, Noel Lwoga, Wineaster Anderson and Zahor Zahor)	Promoting women's participation in rural entrepreneurship through women's groups (Mohamed Semkunde, Elly Tumsifu, Goodluck Charles & Linley Chiwona-Karlton)	Potential nutritive locally available feed ingredients used for tilapia farming in Tanzania (Francis Pius Mmanda, Jan Erik Lindberg, Anna Norman Haldén, Matern S.P. Mtolera, Rukia Kitula and Torbjörn Lundh)
11.45 - 12.00	Discussion (All)				
12.00 - 12.15	Tanzania should use local available mineral materials – bauxite, gypsum and magnesite for arsenic removal from drinking water sources (Regina Irunde)	Research Capacity Among Academics in Tanzanian Universities (Simon Peter Ngalomba)	Education and Health as Components of Inclusive Tourism Development in Mwanza, Geita and Kagera: The Use of Geographical Information Systems (GIS) (Zahor Zahor, Leonard Mitti and Wineaster Anderson)	Increasing women participation in horticulture export Business in Tanzania: constraints and policy options (Merezia Wilson, Lettice K. Rutashobya, Johan Gaddefors, Lemayon Melyoki and Opira Otto)	Fish farming in Tanzania: What is its current contribution to household income and farmers' perception? (Deogratias Pius Mulokozi, Francis Pius Mmanda, Paul Onyango, Torbjörn Lundh, Rashid Tamatamah and Håkan Berg)
12.15 - 12.30	Discussion (All)				
12.30 - 12.45	Integrating char briquettes production in faecal sludge treatment plants (Petro Mwamlima, Richard Kimwaga, Sara Gabriellsson, Aloyce W Mayo, Alexander)	Do They Think? Leveraging the Roles and Constraints of Think-tanks in Enhancing Industrialisation in the Globalised World: Evidence from Tanzania (Chakupewa Joseph Mpambije)	Conservation and Adaptive Management of Globally Significant Cultural Heritage Assets in the Lake Eyasi Basin, Northern Tanzania (Pastory Magayane Bushozi)	Better storage could reduce billions worth Of food loss and improve food security (Martin Julius Chege Razack Lokina and Ag Mwakaje)	Seasonal distribution of fish larvae in mangrove-seagrass areas of Tanzania (Barnab Tarimo, Monika Wind Matern S.P. Mtole Christopher A. Muhando and Martin Gullstrom)
12.45 - 13.00	Discussion (All)				
13:00 – 14:00	LUNCH BREAK				

	Parallel Session I Sub-theme: Water & Sanitation Venue: Main Hall Chairperson: Chairperson of Agriculture, Livestock and Water Parliamentary Committee (Isabela Thomas)	Parallel Session VI Sub-theme: Smart Energy Venue: Masai Hall Chairperson: Chairperson Industrial Trade and Environment Rapporteur (Diana Rwegasira)	Parallel Session III Sub-theme: Sustainable Tourism Venue: Serengeti Hall Chairperson: Chairperson Land, Natural Resources and Tourism PC Rapporteur (Merezia Wilson)	Parallel Session IV Sub-theme: Food Security and Agribusiness Venue: Fr. Vicent Hall Chairperson: Chairperson of Social Services and Community Development PC Rapporteur Rapporteur (Parallel Session V Sub-theme: Aqua & Biotechnology Venue: Lounge Hall Chairperson: Chairperson Economic Committee- House of Rep Rapporteur (Juma Hussein)
14:00 - 14:15	Improving the design and performance of faecal sludge dewaterability (Benjamin Doglas, Richard Kimwaga, Aloyce.W Mayo, Sara Gabriellsson, Augustina Alexander)	Enhancing reliability to the national grid through intelligent monitoring mechanism (Hadija Mbembati, Hussein Bakiri, David Makota)	Factors Affecting the Tanzania Consumers' Post-Transaction Sales EFD Receipts Claims: Evidence from EFD Sale Receipts in Dar es Salaam (Juma James Masele and Leonard Justine Mutiba)	The linkage between forests and household food security: Empirical evidence from Shinyanga, Tanzania (Matilda Ntiyakunze, Jesper Stage and Razack Lokina)	Improved Tilapia Strains for Commercial and Sustainable Aquaculture Growth in Tanzania (Mbiru Moses, Leonard J Chauka, Dirk Jan de Koning, Christos Palaiokostas, Matern SP Mtolera)
14:15 – 14:30	Discussion (All)				
14:30 – 14:45	Advancing and promoting faecal sludge-derived products uptake at community level (Isabela T. Mkude, Richard Kimwaga, Sara Gabriellsson, Augustina Alexander)	Reversing fixed line communication decline in Tanzania through national grid: policy option (Kwame Ibwe, Nerey Mvungi)	'We have what we experience': Local People's Inclusiveness in Destination Tourism Exchanges (Nelly Samson Maliva)	Market oriented agriculture and household diet Diversity and nutrition in Tanzania (Martin Julius Chegere and Monica Sebastian Kauky)	Common Garden Comparison of Native Nile Tilapia (Oreochromis niloticus) Strains Cultured in Brackish and Freshwater Environments (Redempta A Kajungiro, Christos Palaiokostas, Anna N Haldén, Chacha Mwita, Matern SP Mtolera and Dirk Jan de Koning)
14:45 – 15:00	Discussion (All)				
15:00 – 15:15	Towards safe pit emptying in Unplanned Urban Settlements (Amour Seleman, Richard Kimwaga, Sara Gabriellsson, Augustina Alexander)	Enhancing Service Restoration in Tanzanian Power Grid through the use of IoT Sensors and Renewable Energy Sources (Daudi Mnyanghwalu, Rukia Mwifunyi, Shamte Kawambwa)	Social Media Marketing of Tanzania's Souvenir Sellers: Self-Inclusive or Exclusive (Maximilian Mfaume & Dev Jani)	Airflow onion storage technology (AOST) for reducing postharvest losses (PHLs), improving farmer's income and enhancing food security in Tanzania. (Eliah Ayubu, Aloyce Hepelwa, and Oscar Kibazohi)	Biomass and Nutritive Value of Spirulina (Arthrospira Fusiformis) Cultivated in a Cost-Effective Medium (Angelina Michael, Margareth Serapio Kyewalyanga & Charles Venance Lugomela)
15:15 – 15:30	Discussion (All)				
15:30 – 15:45	Improving Menstrual Hygiene Management in secondary schools (Jackline Lucas, Richard Kimwaga, Aloyce Mayo, Augustina Alexander)	Advocating for Deployment of ICT Infrastructure for LV Network Automation (Godfrey Chugulu, Yona Andegelile, Gilbert M. Gilbert, Ally Bitebo)	Contesting COVID-19 to Recover Tourism: Actors' Responses in Tanzania (Godwin Adiel Lema)	The effects of monoculture plantation on ecosystem services in Southern Highlands of Tanzania. (Ms. Luth Mligo, Catherine A. Masao and Pius Z. Yanda)	Comparison of Seaweed Growth, Fish Abundance and Diversity in Deep Water Floating Raft with Tubular Nets and Shallow Water Off-bottom Lines Seaweed Farms (Batuli M. Yahya, Saleh A. S. Yahya, Aviti J. Mmochi and Narriman S. Jiddawi)
15:45 – 16:00	Discussion (All)				
16:00 – 16:15	Promoting the use of High Rate Algal Ponds as Alternative Wastewater Treatment Option to Conventional Waste Stabilization Ponds (Mary Kayombo, Richard Kimwaga, Aloyce Mayo, Sara Gabriellsson, Augustina Alexander)		Corporate Sustainability and Financial Performance of Tourism Firms in Tanzania: The Mediating Role of Firm Capabilities (Suluo Said, Lena Mossberg and Wineaster Anderson)	Eco-friendly food packaging materials based on Agricultural Biomass (Jerome M. Bidu, Liberato V. Haule and Lilian D. Kaale)	Light Colour Affect the Survival Rate, Growth Performance, Cortisol Level, Body Composition, and Digestive Enzymes Activities of Different Snubnose pompano Larval Stages (John Mapunda, Matern S.P. Mtolera, Saleh A.S. Yahya, Van Manh Ngo, Matan Golan)
16:15 – 16:30	Discussion (All)				

16:30 – 16:45	Upscaling the use of biodigester for sustainable treatment of Human placenta in health care facilities (Susan Marco, Sara Gabriellsson, Richard Kimwaga, Aloyce.W.Mayo, Augustina Alexander)		Service Innovation: Does Tourist Interaction and Feedback Matter? (Theresia Busagara, Neema Mori, Lena Mossberg, Tommy Anderson and Dev Jani)		Supplementing Wastewater with NPK Fertiliser as a Cheap Source of Nutrients in Cultivating Live Food (Chlorella Vulgaris) (Kulwa Mtaki, Margareth S. Kyewalyanga and Matern S.P. Mtolera)
16:45 – 17:00	Discussion (All)				
17:00 – 17:30	Health Break				All
18.00 – 20.00	Networking Event				All
END OF DAY ONE					

DAY TWO: FRIDAY, 12TH NOVEMBER 2021

TIME	EVENT/ACTIVITY		RESPONSIBLE PERSON		
08.30 - 08.45	Registration		Secretariat		
08.45 - 09.00	Recap		Dean of Ceremony Dr. Richard Kimwaga		
09.00 - 09.10	Announcements		Secretariat		
Parallel Sessions of Academic Paper Presentations					
Time	Parallel Session I Sub-theme: Food Security	Parallel Session II Sub-theme: Molecular Bioscience	Parallel Session III Sub-theme: Agribusiness and Sustainable Tourism	Parallel Session IV Sub-theme: Water & Sanitation Management	Parallel Session V Sub-theme: Smart Energy Systems and Mathematics
	Venue: Fr. Vicent Hall Chairperson: Prof. Gert Nyberg Rapporteur (Aneth David)	Venue: Masai Hall Chairperson: Prof. Thomas Lyimo Rapporteur (Modester Damas)	Venue: Internet Hall Chairperson: Prof. Esther Ishengoma Rapporteur (Theresia Busagara)	Venue: Serengeti room Chairperson: Prof. Bakari Mwinziwiwa Rapporteur (Amour Selemeni)	Venue: Lounge Hall Chairperson: Dr. Musa Kisaka Rapporteur (Diana Rwegasira)
09:10 -09:25	Formulation and Characterisation of Mixed Juices from Banana, Pineapple and Passion Fruits during Storage (Victor Vicent, and Oscar Kibazohi)	Structural Characterisation of a Novel Cysteine-Rich Peptide from the Massive Edible Mushroom <i>Kusaghiporia Usambarensis</i> (Juma M Hussein, Celestine N. Chi, Sanja Tibell, Donatha D Tibuhwa, Erik Jacobsson, K Johan Rosengren, Christina Wedén, and Ulf Göransson)	Promotion Strategies and Tourists' Hotels Performance in Tanzania. Insight from Dar es Salaam City Based Tourists' Hotels. (Omari K. Mburu and Simith J. Sanga)	Key Players/Actors for Reducing Rural Women's Workload of Fetching Water in Busega District, Tanzania (Deborah Andrew Ngusa)	Identity and Access Management for Distributed Devices for IoT Enabled Distribution Automation in Electrical Secondary Distribution Network (Ally Tahir Bitebo , Hellen Maziku, Ndyetabura Hamisi, Charles N. Tarimo)
09:25 -09:40	Antifungal Activity of Artemisia Afra against Aspergillus Flavus Growth and Aflatoxins Production (Noela G. Kilenga, Oscar Kibazohi and Lilian D. Kaale)	Calicioid Lichens; Revision of Coniocybe Ach. (Stella G. Temu, Sanja Tibell, Donatha D. Tibuhwa and Leif Tibell)	The Nexus between Promotion Strategies and Tourists' Hotels Performance in Tanzania. (Omari Khalifa Mburu)	Validation and Prediction of Accuracy of Satellite-based CHIRPS Rainfall data (Deogratias M.M. Mulungu and Erasto Mukama)	Applications Monitoring Platform for Fault Detection and Clearance in Electrical Secondary Distribution Network (Gilbert M. Gilbert , Shililiandumi Naiman , Honest Kimaro)
09:40 -09:55	Black Soldier Flies and Azolla Farming as Animal Feed: A Case Study at Kaziru Poultry Farm and Research Center (Martin Henry; Doroth O. Katanga; Aseri Katanga)	Antimicrobial Activities of Endophytic Fungal Crude Extracts Isolated from Cashew Tree (<i>Anacardium occidentale</i>) (Nana Amiri & Donatha D Tibuhwa)	Offshore Korean Saemaul Undong Project: A Comparison of External and Internal Initiatives in Rural Inclusiveness (Robert Suphian and Dev Jani)	Simultaneous Removal of Fluoride and Arsenic from Water by Hybrid Al-Fe Electrocoagulation: Process Optimisation through Surface Response Method. (Magori J. Nyangi, Yonas Chebude, Kessy F. Kilulya Andrew Minu)	MPPT Based Solar PV System with DC Voltage Regulation for Ikuza Island (Nassoro S. Nassoro , Bakari Mwinziwiwa and Consalva J. Msigwa)
09:55 -10:10	Rangeland Management Practices for Enhancing Food Security in Miombo Woodlands: An Overview (Peter Rogers Ruvuga, Ewa Wredle, Catherine A. Masao, Ismail Selemeni, Anthony Sangeda, Gert Nyberg and Cecilia Kronqvist)	Molecular Diversity of Hard Tick Species from Selected Areas of a Wildlife-Livestock Interface in Mikumi National Park, Morogoro Region, Tanzania (Donath Damian, Modester Damas, Jonas Johansson Wensman and Mikael Berg)	Women's Rural Agribusiness-Entrepreneurship: Beyond Farming and Processing (Merezia Wilson, Lettice K. Rutashobya, Johan Gaddefors, Lemayon Melyokia and Opira Otto)	Effects of Co-existing ions on Simultaneous Removal of Fluoride and Arsenic from Water by Hybrid Al-Fe Electrocoagulation (Magori J. Nyangi, Yona Chebude, Kessy F. Kilulya Andrew Minu)	Fault and Restoration-Based Load Demand Forecasting Mechanism for Automatic Fault Clearance using Real-Time Long-Term Power Consumption Determinants; (Hussein Bakiri , Hellen Maziku, Nerey Mvungi, Libe Massawe, Hamisi Ndyetabura)
10:10 -10:30	Discussion (All)				
10:30 -11:00	Health Break				

	Parallel Session I Sub-theme : Food Security Venue: Fr. Vincent Hall Chairperson: Prof. Mwita Chacha Rapporteur (Peter Ruvuga)	Parallel Session II Sub-theme Molecular Bioscience Venue: Main Hall Chairperson: Prof. Donatha Tibuhwa Rapporteur (Juma Hussein)	Parallel Session III Sub-theme: Agribusiness and Marine Science Venue: Masai Hall Chairperson: Prof. Linley Chiwona-Karlton Rapporteur (Merezia Wilson)	Parallel Session IV Sub-theme: Sustainable Water Resources Management Venue: Serengeti room Chairperson: Dr Deogratias Mulungu Rapporteur (Isabela Thomas)	Parallel Session V Sub-theme 4: Smart Energy Systems and Mathematics Venue: Lounge Hall Chairperson: Dr. Ellen Kalinga Rapporteur (Dr. Kwame Ibwe)
11:00-11:15	Is modern Beekeeping Commercially and Environmentally Viable? An Assessment of the Modern Adoption of Beehives in Semi-Arid Areas of Central Tanzania (Charles Felix Chami, Emma T. Liwenga & Catherine A. Masao)	Genetic Relationship between Hard Ticks (Ixodidae) Infesting Cattle in a Wildlife-Livestock Interface in Mikumi National Park, Tanzania (Donath Damian, Modester Damas, Jonas Johansson Wensman and Mikael Berg)	Gendered Participation in Rice Farming in Kyela, Tanzania (Mesia Ilomo, Johanna Bergman-Lodin, Lettice Kinunda Rutashobya, Katarina Pettersson, Esther K. Ishengoma)	Arsenic Removal Using Locally Available Gypsum Minerals in Tanzania (Regina Irunde, Fanuel Ligate, Julian Ijumulana, Jon Petter Gustafsson, Jyoti Prakash Maity, Prosun Bhattacharya & Felix Mtaló)	Software Defined Sensor Network (SDSeN) Simulation Framework for Secondary Distribution Power Network (Godfrey W. Chugulu, F. Ruganyumisa and P. Mafole)
11:15- 11:30	Beekeeping as a Tool for Environmental Conservation in Semi-Arid Areas of Central Tanzania (Bwemero Oscar, Catherine A. Masao & Emma T. Liwenga)	Diversity of Viruses in Hard Ticks (Ixodidae) in a Wildlife-livestock Interface Ecosystem in Mikumi National Park, Tanzania (Donath Damian, Modester Damas, Jonas Johansson Wensman and Mikael Berg)	Circumventing Group Dynamics and Gender Stereotypes in Women Groups: Lessons from Performing Rural Women's Collective Enterprises in Tanzania (Mohamed Semkundel, Elly Tumsifu, Lettice Kinunda Rutashobya, Goodluck Charles, Linley Chiwona-Karlton)	Machine Learning Approach to Understanding Co-occurrence and Spatial Variability of Geogenic Contaminants in Drinking Water Sources of North-West Tanzania (Julian Ijumulana, Prosun Bhattacharya, Arslan Ahmad, Fanuel Ligate, Regina Irunde, Ines Tomašek, Jyoti Prakash Maity, Felix Mtaló, & Vivian Kimambo)	Grid Connected PV-Wind Energy System for Luxmanda Village in Tanzania (Lucy J. Fungo, Aviti T. Mushi, and Consalva J. Msigwa)
11:30-11:45	Spatial Prediction of Irish Potato Suitable Soils from Topographic Attributes Derived from a Digital Elevation Model (Finias Fidelis, Dr James Lyimo, Dr. Simon Mwansasu)	Characterisation and Analysis of Antimicrobial Activity of Endophytic Fungi Associated with Medicinal Plants from Selected Regions of Tanzania (Zuhura Mwanga, Esther Mvungi & Donatha Tibuhwa)	Serial and Portfolio Female Entrepreneurs in Rural Areas: Motivations, Outcomes and Benefits (Lettice Kinunda-Rutashobya & Linley Chiwona-Karlton)	A Column design with low-cost adsorbent for hard water treatment: A case study of Dodoma City (Morris F Hiji)	Proposing Mixed Coupled Hybrid Renewable Energy Sources for Mwanza International Airport (Monyiachi N. Minja and Aviti T. Mushi)
11:45-12:00	Discussion (All)				
12:00-12:15	Towards Meeting the Food Demand for 2050 through Urban Integrated Aquaculture-Agriculture (Aulath Mzamilu Mustafa, Paul O. Onyango and Mwita Chacha)	Anti-Respiratory Syncytial Virus Activity Erythrina Abyssinica Stem Bark Extracts (Molle JT, Said J, Masalu RJ, Bergstrom T, Trybala E)	Rural Entrepreneurship and the Context: Navigating Contextual Barriers through Women's Groups (Mohamed Semkundel, Elly Tumsifu, Goodluck Charles, Johan Gadddefors, Linley Chiwona-Karlton)	Improving Menstrual Hygiene Management in Secondary Schools (Jackline Lucas, Richard Kimwaga & Aloyce Mayo)	DC Voltage Regulation of Solar PV/ Wind and Biofuel Hybrid System Incorporating Battery Storage (Mwaka I. Juma, Bakari M.M. Mwinywiwa, Consalva J. Msigwa and Aviti T. Mushi)
12:15-12:30	The Potential of Lactic Acid Bacteria (Lab) Isolated from Tuna and Tuna-Like Species for Seafood Preservation (Jerry Mang'ena, Sylvester Lyantagaye and Lulu Tunu Kaaya)	Anti-Respiratory Syncytial Virus Activity of Anthocleista Grandiflora Extracts (Molle JT, Said J, Masalu RJ, Bergstrom T, Trybala E)	Exploring Governance, Transaction Costs and Networks in Linking Horticultural Smallholders and Tourist Hotels (Winnie Nguni)	Examining the Performance of High-Rate Algal Pond (HRAP) as an Alternative Wastewater Treatment Option to Conventional Waste Stabilisation Ponds (Mary Kayombo, Richard Kimwaga, Aloyce W. Mayo)	Comparison of Mitigation Techniques of Harmonic Filters for Non-Linear Load (N.H Kuchi, E. S. Matee & C. J. Msigwa).

12.30-12.45	Market-oriented Agriculture and Household Diet Diversity and Nutrition in Tanzania (Martin Julius Chegere and Monica Sebastian Kauky)	Why has Permanent Control of Cassava Brown Streak Disease in Sub-Saharan Africa Remained a Dream since the 1930s? (Herieth Rhodes Meroa, Sylvester Leonard Lyantagaye & Erik Bongcam Rudloff)	Seagrass Meadows Mixed with Calcareous Algae have Higher Plant Productivity and Sedimentary Blue Carbon Storage (Olivia J. Kalokora, Martin Gullström, Amelia S. Buriyo, Matern S. P. Mtolera & Mats Björk)	Upscaling the Use of Biogester for Sustainable Treatment of Human Placenta in Health Care Facilities: Case of Mwananyamala (Susan Marco, Sara Gabrielson, Richard Kimwaga, Aloyce.W Mayo)	Multi-Agent based Fault Localisation and Service Restoration in Tanzania's Secondary Distribution Network (Rukia J. Mwifunyi, Nerey H. Mvungi, & Mussa M Kissaka)
12.45-13.00	The Impact of Hermetic Storage Bag Supply and Training on Food Security in Tanzania (Martin Julius Chegere, Razack Lokina and Agnes G. Mwakaje)	Cassava Brown Streak Viruses Express Second 6-kilodalton (6K2) Protein with Varied Polarity and 3D Structures: Basis for Trait Discrepancy between the Virus Species (Herieth Rhodes Meroa, Sylvester Leonard Lyantagaye, Juliette Hayer, and Erik Bongcam Rudloff)	Methane Emission and Sulfide Levels Increase in Tropical Seagrass Sediments during Temperature Stress: A Mesocosm Experiment (Rushingisha George, Martin Gullström, Matern S.P. Mtolera, Thomas J. Lyimo & Mats Björk)	Key Players/Actors for Reducing Rural Women's Workload of Fetching Water in Busega District, Tanzania (Deborah Andrew Ngusa)	SDN-Based Communication Network Resilience for Secondary Distribution Electric Power Grid (Yona Andegile, M. M. Kissaka and N. H. Mvungi)
13.00-14.00	Discussion (All)				
13.00-14.00	LUNCH BREAK				
Time	Parallel Session I Sub-theme: Food Security	Parallel Session II Sub-theme: Molecular Bioscience	Parallel Session III Sub-theme: Marine Science	Parallel Session IV Sub-theme: Water & Sanitation Management	Parallel Session V Sub-theme: Smart Energy Systems and Mathematics
	Venue: Fr. Vicent Hall Chairperson: Prof. Sylvester Lyantagaye Rapporteur (Aneth David)	Venue: Masai Hall Chairperson: Dr. Lulu Kaaya Rapporteur (Modester Damas)	Venue: Internet Hall Chairperson: Dr. Margareth Kyewalyanga Rapporteur (Dr Rukia Kitula)	Venue: Serengeti room Chairperson: Prof. Prosun Battacharya Rapporteur (Amour Selemeni)	Venue: Lounge Hall Chairperson: Prof. Bengt-ove Turesson Rapporteur (Diana Rwegasira)
14:00-14:15	Egocentric Network of Local Level Institutions in Promoting Climate Resilience among Pastoral Communities in Northern Tanzania (Ronald B. Ndesanjo and Mathew Senga)	Metagenomics Reveals a Micro-community of Biotechnologically Potential Halophiles from the Big Momela Microbiome (Reuben Maghembe, Stephen Nyandoro, Sylvester Leonard Lyantagaye, Ajith Kumar, Souvik Kusari, Rajni Hatti-Kaul)	Assessing the Genetic Diversity of Farmed and Wild Rufiji Tilapia (<i>Oreochromis Urolepis Urolepis</i>) Populations using ddRAD Sequencing (Christer S. Nyinondi, Matern S. P. Mtolera, Aviti J. Mmochi, Fernando A. Lopes Pinto, Ross D. Houston, Dirk J. de Koning & Christos Palaiokostas)	Validation and Prediction of Accuracy of Satellite-Based CHIRPS Rainfall Data (Deogratias M.M. Mulungu and Erasto Mukama)	Predictive Torque Control of MW-Class Direct Drive Back-to-Back 2-Level-VSC-BASED SPMSG WECS (Yusuph Adam, Fransic Mwasilu, and Consalva J. Msigwa)
14:15-14:30	Food Security Impacts of Climate Change among Pastoral Households in Northern Tanzania (Ronald Boniphace Ndesanjo, Ida Theilade and Martin Reinhardt Nielsen)	Antimicrobial Activities of <i>Tephrosia Vogelii</i> against Selected Pathogenic Fungi and Bacteria Strains (Stephano Hanolo Mlozi, Juma A. Mmongoyo and Musa Chacha)	Effects of Different Types of Manure on the Culture of Marine Plankton as a Potential Source of Food for Mariculture Hatcheries (Fadhili M. Malesa, Margareth S. Kyewalyanga, Rose J. Masalu, Matern S. Mtolera)		Asymptotic Approximation of Misclassification Probabilities in Linear Discriminant Analysis with Repeated Measurements (E.K. Ngailo, D. VonRosen, and M.Singull)

14:30-14:45	Discussion(All)				
14:45-15:00	Probing the Interactions of Proteins and Phenolic Compounds during Extraction of Low Viscosity Banana Juice Using FTIR Spectroscopy (Nuria Majaliwa, Vicent Victor, Clarence Mgina, Oscar Kibazohi & Marie Alminger)	Determination of Maternal Vaginal Microbial Community Composition during Pregnancy and Its Association with Preterm Birth in Tanzania (Rugumisa BT, Sangeda RZ, Massawe NS, Lyantagaye SL, & Bongcam-Rudloff E)	Detection and Characterisation of Pseudomonas Species in Cultured Tilapia (Oreochromis Niloticus) in Pwani Region, Tanzania (Valeli J. Bugota, Aviti J. Mmochi, Lucy A. Namkinga, Matern S. Mtolera)		Application of Multi-Criteria Decision-Making Methods in the Choice of Crops for Small-scale Agro-Processing: The Case of Njombe Region, Tanzania (Benito Gasper Mung'ong'o & David Koloseni)
15:00-15:15	Phylogenetic Diversity of Actinomycetes from Momela Soda Lakes, Arusha National Park, Tanzania (Sadikiel E. Kaale, Ally Mahadhy, Modester Damas, Clarence A. Mgina and Thomas J. Lyimo)	Factors Associated with Risk of Preterm Delivery in Tanzania: A Case-control Study at Muhimbili National Hospital (MNH). (Rugumisa BT, Bongcam-Rudloff E, Lukumay MS, and Lyantagaye SL)			
15:15-15:45	Discussion (All)				

(C) CLOSING CEREMONY

TIME	EVENT/ACTIVITY	RESPONSIBLE PERSON
16:00 - 17:00	Chairperson: Prof. Bernadeta Killian Rapporteur (Rahma Muhdhar)	DVC-Research
16:00 - 16:30	Presentation of Key Conference Resolutions/Recommendations	Dr. Richard Kimwaga
16:30 - 16:40	Closing Speech	Johan Hellström Sida Country Coordinator
16:40 - 16:55	Vote of thanks	Dr. Mussa Mgwatu Director of Research and Publication
16:55 - 17:00	Group Photos	Dean of Ceremony
END		

*Thank you!
Asanteni sana!
Shukrani!*

The Vice - Chancellor,
Professor William A. L. Anangisye
would like to thank the following
institutions for sustainable partnership:

1. Stockholm University
2. Swedish University of Agricultural Sciences
3. Chalmers University of Technology
4. University of Uppsala
5. University of Skövde
6. University of Gothenburg
7. Royal Institute of Technology
8. Lund University
9. Linköping University and
10. Mälardalen University



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UDSM-Sida Research Programme

UDSM-Sida Cooperation Research Programme 2015-2022 is supported by the Government of Sweden under bilateral arrangement between Tanzania and Sweden on research partnership aimed at facilitating the UDSM aspirations “Towards Enhanced Sustainability of Strategic Research and Innovation Systems for Inclusive Development in Tanzania.” The Programme has total budget of SEK One hundred eighty seven millions, eight hundred thousand (187,800,000) which is equivalent of TZS 47 billion.



Taking full advantage of the various achievements from earlier support from Sida and other development partners, the overall objective of this programme is to generate sufficient analytical capacity and research based knowledge and technological innovations with appropriate and immediate valuable outcomes to relevant stakeholders (policy makers, industry, civil society etc.) in addressing the problem of poverty and promoting sustainable and inclusive development



Sustainability measures include the enhancements of analytical capacities through training and improved research environment. With UDSM outputs eventually feeding into the Tanzania University Network, the proposed capacity strengthening measures would also improve youth participation at higher levels of education especially for females. So far, 59 (38% female) Postgraduate students (31 PhD & 28 MSc) have graduated and are currently working with Higher Learning Institutions and other government organizations.

UDSM-Sida programme consists of 12 sub programmes, of these, 2 are support-programmes and 10 are research programmes. The programme is implemented under the partnership of UDSM and a total of Ten (10) Swedish institutions.

UDSM-Sida Sub-Programmes



DAFWAT Sub-Programme

DAFWAT sub-programme investigates and optimizes the use of low-cost affordable adsorbents to remove fluoride and arsenic from drinking water sources. The programme emphasises on generating local knowledge through specialised training of staff and students on developing low-cost water treatment options. A pilot water defluoridation plant using available natural material (combination of calcined gypsum, bauxite, and magnesite) was installed and tested at one of the places with excess fluoride.



ENGAGE Sub-programme

ENGAGE program addresses the need for a gender informed value chain approach when studying agriculture and entrepreneurship. Failure to grasp the bigger picture has led to fragmented agricultural value chains in Tanzania, which points to the need for innovative models and approaches that will ensure inclusive and sustainable rural development.



Food Security Sub-programme

Food Security aims at building capacity in postharvest technologies in particular food processing and industrial biotechnology with focus on seasonal variability, impact of quality, value chain and access to markets stunt economic. The programme is well known for its Banana juice Technology and Green production

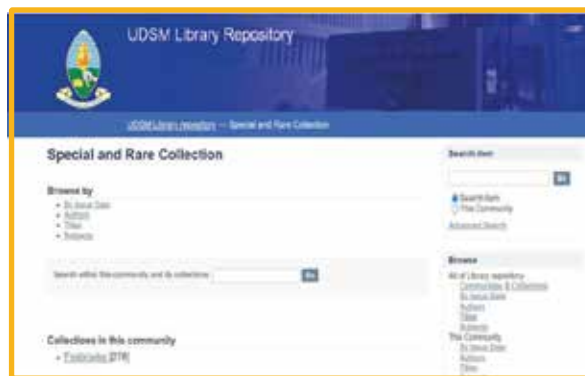


iGRID Sub-Programme

iGRID focuses on capacity development and enhancement in Tanzania research training program. It intended to develop human technical and scientific capacity to facilitate implementation of automation on monitoring, evaluation, analysis, control and management of electrical power system (smart grid). The program aims at improving delivery efficiency and to optimize operational costs in the electrical power system in Tanzania within the area of microgrid and electrical secondary distribution network.



Molecular Biosciences Sub-Programme
Interdisciplinary Molecular Biosciences Program (IMB) focuses on research areas that lead to the development of novel therapeutics from natural products (plants, microalgae, microbes and fungi). It also builds capacity in areas covering disease processes, pathogen-host interactions, drug molecular targets and discover novel microbial pathways with potential for production of active biomolecules.



Library Sub-Programme
Library Sub-programme embarks on strengthen access and utilisation of research information at University of Dar es Salaam through providing efficient/timely access, dissemination and utilisation of research information. The programme commitments to facilitate both the long term and results oriented plans that aim at fast-tracking Tanzania Development Vision 2025 by resolving constraints to results delivery in key priority growth sectors



Marine Science Sub-Programme

Marine Science programme is a capacity building programme implemented by IMS with the aim of increasing analytical capacity and improve environment for sustained research and innovation outputs in fisheries and aquaculture for food security, adapting to climate change, poverty alleviation, sustainable resource management and inclusive development



Mathematic Sub-Programme

Mathematic sub-programme aim at enhancing sustainable socio-economic development, application of science, technology, and innovation for inclusive development through recruiting and training dedicated and highly qualified academics that will be committed to improving the teaching and learning of mathematics as well as conducting research and solving problems in the private and public sectors in Tanzania.



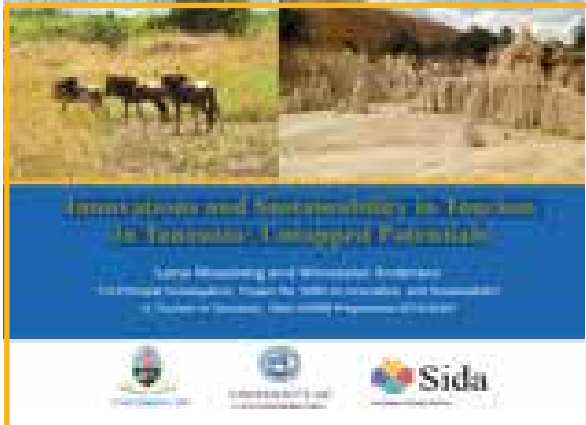
Research Management Sub-Programme

Research Management sub-programme aims at enhancing the management and administration of research at the University of Dar es Salaam so as to maximize the impact of research outputs locally and internationally. It entails improved research management at all levels through training, having the necessary infrastructure such as ICT facilities and increased participation of academic members in research dissemination forums



SUSTAIN –Sub-Programme

SUSTAIN (Sustainable Sanitation in Theory and Action) is a capacity building program strives to generate actionable knowledge which in Tanzania. It takes into account both the environmental aspects and boundaries inherent in the water and waste cycle to come up with sustainable solutions to the sanitation problems faced.



Tourism Sub-Programme

Tourism sub-programme aims at promoting innovation and sustainability of tourism natural resources for inclusive development while promoting social diversity, especially gender equity and youth advancement. It looks at the extent of local linkages involving the small and medium tourist enterprises and establishing the value addition in the tourism value chain in Tanzania



Water Resources Sub-Programme

Water Resources focus on linking Public-Private Partnership to Sustainable WR Management in the Kilombero-River Basin Project. It supports the building of individual and institutional capacity to carry out research within impacts of landscape changes across spatial scales. It also assess the related impacts on the hydrology and water resources; and design/implementation of appropriate adaptation strategies.

UDSM-Sida Project in Pictures



Curricula Orientation Workshop



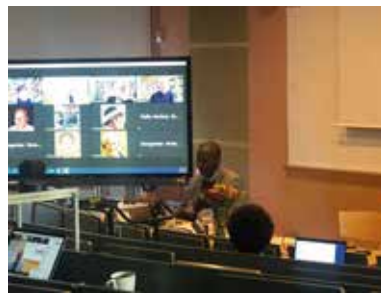
Launching of Sustainable Tourism Development Book



Fieldwork in Bagamoyo



Field Work at Kilombero



Viva voce during COVID-19 error



UDSM-Sida Programme during 6th Research and Innovation Week



Char Briquettes from Fecal sludge



DVC-Research visit to Institute of Marine Science - Zanzibar



New deflouridation Technology



PhD Graduates from UDSM-Sida Programme



Visit to Oldonya Sambu village facing health impacts of elevated fluoride in groundwater



Wastewater Treatment Plant at UDSM

Conference Organizing Committee

Prof. Bernadeta Killian (Deputy Vice Chancellor -Research), Chairperson

Dr. Mussa Mgwatu (Director of Research & Publication), Co-Chairperson

Dr. Latifa Mbelwa (UDSM-Sida Research Programme Coordinator)

Dr. Mathew A. Senga (Coordinator Research Grant)

Jackson Isdory (Public Relation Officer), Member

Dr. Augustina Clara Alexander, Member

Dr. Richard Joseph Kimwaga, Member

Dr. Kwame Salum Ibwe, Member

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Morry Kijonjo, Member

Finner Evarest, Member

Zamda Geuza, Member

Zitta Lumato, Member

Munubi Tella, Member

Ally Bitebo, Member



Kimbia Nasi,
Boresha Maisha ya Wanachuo

Siyoy ya Kukosa

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