



**REPORT OF THE ANNUAL RESEARCH
DISSEMINATION WORKSHOP HELD ON** Friday, 27th
October 2017 at the Blue Pearl Hotel, Ubungu Plaza, Dar es Salaam

Prepared by

Heric Thomas and Innocent Wawa

2017

1. Objectives of the meeting

The Science, Technology and Innovation Policy Research Organization (STIPRO), a non-governmental think tank devoted to policy research in science, technology and innovation (STI) in Tanzania, held a Research Dissemination Workshop on Friday, the 27th October 2017 at Classic Hall, Blue Pearl Hotel, Ubungo Plaza, in Dar es Salaam. The aim of the workshop was to disseminate research results, raising awareness and engaging in dialogue with various stakeholders on issues around Science, Technology and Innovation (ST&I). The workshop attracted total number of 45 participants from government institution and ministries, academic institutions and private sector.

This year's ARDW was specifically organized under the theme **“INNOVATION CAPABILITIES AND INTERACTIVE LEARNING: THE ROLE OF INSTITUTIONS”**; **whereby** four most recently completed research projects were presented: one focused at public technology intermediaries; avocado processors in the Global Value Chain and the role of functional upgrading and Innovation; knowledge systems for innovation of innovation centers in Tanzania; finance and innovation in small sunflower oil processors. Additionally, a conceptual paper on “Agricultural Innovation system” and an ongoing project on integrated aquaculture based on sustainable water recirculating system for the Victoria Lake Basin (VicInAqua) were presented during the workshop.

2. Summary of the Presentations

Presentation 1: Strengthening agricultural innovation capacity of developing economies using the AIS framework: A review of Literature. By Vera Florida Mugittu, PhD

The presentation focused on three main conceptual issues. Firstly, the presenter clarified the need to focus on innovation capacities to improve agricultural performance. She argued that agricultural development depends on how knowledge generated is applied, emphasising on continuous learning and adapting. However, in order to achieve this, the government was required to focus on the new approaches that support innovation activities.

Secondly, Dr. Vera described the Agricultural Innovation Systems (AIS) and the role of actors (institutions) in strengthening innovation capabilities in agriculture through interaction, learning and knowledge exchange. She explained the reform and evolution process in form of shifting from a linear approach (to innovation in which public sector, agricultural research and extension deliver new technology in a pipeline configuration) to a system's approach (in which innovation is the result of a process of networking, interactive learning and negotiation among a heterogeneous set of actors).

It was then reported that AIS framework can be used to analyze/plan to develop agricultural innovation capacities. This is because the innovation systems concept recognizes the importance of the inclusion of stakeholders and the development of behavioral patterns that make organizations and policies sensitive to stakeholders' agendas or demands. Stakeholders' demands are important signals that can shape the focus and direction of innovation processes. They are not articulated by the market alone but can be expressed through a number of other channels, such as collaborative relationships between users and producers of knowledge or mutual participation in organizational governance (for example, board membership).

The presenter concluded by saying that developing agricultural innovation capability is inevitable given the role of agriculture in poverty alleviation and the current market dynamics. She therefore recommended the following; first, there is a need to assess capacity gaps at the individual actor/organization level as well as at the system level. Secondly, agricultural innovation capacities must be approached in a holistic manner using the AIS framework where all actors are involved. Thirdly, innovation capacity requires continuous learning and exchange of knowledge among different actors through interactions and lastly building innovation capacity requires effective knowledge management and brokerage.

Discussion and Issue emerged

A discussion highlighted on one issue that was impeding the building of innovation capacity in Tanzania, which is the policy of one district, one product. The participant pointed that the government has been focusing on the needs of individual actors in different sectors, instead of taking a holistic approach that will facilitate the creation of systems that will engage all actors

from different production sectors. Integrated farming approach was viewed as a policy option in building innovation capacity in Agriculture.

Another issue of discussion was on the missing link between research findings and dissemination by pointing out that what in most cases was developed in 'R&D' was not transferred to users, which means that the private sector continued to lack knowledge and skills that were required for growth in the agricultural sector. Participants suggested that the government should find ways of linking research institutions and private sector so that knowledge generated can be shared between the two actors.

Presentation 2: Reforming Public Technology Intermediaries in Tanzania (PTIs): A Policy Learning Study. *By Gussai H. Sheikheldin, PhD*

Dr. Sheikheldin started by pointing out that Public Technology Intermediaries (PTIs) have been an important part of Tanzania's history of national technological development efforts since the 1970s. PTIs are semi-independent organizations, established by the state to play an intermediary role between R&D, industries and markets. He informed that while the industrial/manufacturing sector is lagging behind in contribution to that growth, Tanzania's national policy is in route for boosting science, technology and innovation and promoting industrialization with a "business unusual" approach. He stated that the main objective of the research was to provide empirical evidence on the challenges and opportunities that PTIs face in supporting industrialization in Tanzania. The case studies were conducted at Tanzania Industrial Research & Development Organization (TIRDO), Small Industries Development Organization (SIDO), Centre for Agricultural Mechanization and Rural Technology (CAMARTEC), Tanzania Engineering & Manufacturing Design Organization (TEMDO), and Commission for Science and Technology (COSTECH). The study used interviews (using guide) to collect opinions about overcoming institutional barriers. Also literature review was used to collect information on the existing policies, historical records, activities and plans.

He pointed out that when asking the main challenges/barriers that many organizations face, financing was cited the main barrier. It was reported that government has been reluctant to support them as it started to turn towards market economy policies. It was further reported that there is lack of clear plans or strategies in place to transform things. Overall, most PTIs operate

in isolation from each other with minimum interaction. Although, there are mechanisms in place that theoretically support collaboration and communication among them, but implementation is a different story. PTIs seem to view themselves largely as independent entities. A number of the interviewees spoke about attuning to the market demands, but also in terms of revamping their own conditions. Fewer interviews made the connection between the PTI and the larger national vision and demands.

Dr. Sheikheldin concluded by stating that in order for policy recommendations to make sense to the STI and industrial sector, they need to be compatible with the general national development strategy. They should also be aware of the limitations within which the ISOs (or PTIs Public Technology Intermediaries) operate, particularly at the national level. To that end, the Tanzania Second National Five Year Development Plan 2016/17-2020/21 (hereafter ‘FYDP-II’) will be our main guiding document, in company of other documents such as the Tanzania Development Vision 2025 (hereafter ‘TDV2025’). The significance of this plan is that is the most recent guiding document that represents the new and general direction of the newly-elected government which, according to many accounts, is reorienting its entire approach to national development.

General Discussion and Issue Emerged

The discussions emphasized a number of contributions from PTIs in supporting industrialization such as biogas technology introduced by CAMARTECH. However, it was stressed that there has been lack of proper strategies to protect and develop biogas in Tanzania. As such it was diffused to Rwanda, being further developed and used. The participants reminded the event where former Tanzania president Benjamin William Mkapa was invited to open the biogas project in Rwanda. President Mkapa was impressed by project but Rwanda officials informed him that the technology originated from Tanzania, even the Head of the project was the former CAMARTECH Director.

Presentation 3: Improving the Position of Tanzanian Avocado Processors in the Global Value Chain: The role of functional upgrading and Innovation

By Mr. *Heric Thomas, STIPRO Assistant Research Fellow*

Mr. Thomas started by pointing out the main objective of the research, which was to collect additional information for the study conducted by STIPRO in 2016 on types of Learning and

Upgrading Opportunities available among avocado farmers participating in GVCs. The study found that there was lack of capacity building among smallholder farmers in order to upgrade into higher positions in the value chain such as processing of avocado into other products such as avocado oil in order to change the governing system (Captive). As such, there was a limited level of knowledge and understanding about initiatives that have been taken by actors in AIS to support functional upgrading such as avocado processing. Therefore, the current study intended to fill in the gaps identified by the above study. The study used key informants/stakeholders, who were involved in the value chain of avocado production and one case study from one processor. Using in-depth interviews were conducted with key informants and processor that was supplemented by secondary data, the study found evidence of some functional upgrading amongst avocado processors. This was observed through a significant support of avocado processing, which was reflected through different actors. For instance, SIDO was found providing training to avocado processors in several areas including technology, entrepreneurship, marketing, packaging and labeling, technical services for plant maintenance and servicing provided. As result, entrepreneurs are able to manufacture cosmetics products from avocado and sell them to major cities including Dar es Salaam. Some quantities are taken by traders who market them in Zambia and in Goma (DRC). Notably, there prevail strong linkages between SIDO and small entrepreneurs.

He also informed about avocado processing in Meru District initiated by Mr. Jesse J. Olyjange under the support from COSTECH, USAID, MIT, and Twende Centre. This was only successful through registering a company called AVOMERU Group Limited in 2015. It was also reported that in February 2016, the AVOMERO Group Limited signed oil delivery contracts with Chief Executive Officers of JOMA, Gladys Beauty and Albert International Distributors. Avomero Group is currently processing the avocados into oil, which is then sold to earlier on mentioned companies. The presenter said that the key message from the study is the changing of governance structure of the business from captive value chain to modular where the entrepreneur was free to sell the products to any customer.

Mr. Thomas concluded by stating that various actors in the AIS have played major roles towards supporting functional upgrading and innovation such as processing of avocados into products with higher market value such as oil and cosmetics like hair and skin lotion. The roles played

were in the provision of processing technology/knowledge (e.g. SIDO, TEMDO, and CARMATEC) and financial support (COSTECH, USAID, IDIN); buying of the avocado oil (both local and international companies); provision of packaging materials (GIS in Kenya); testing of the oil quality (MIT, NMIST, KAIST Korea); incubating the avocado processing idea (AISE, SIDO); provision of raw material (farmers); provision of quality standards (TBS and TFDA) and of marketing services (trade fairs)

General Discussion and Issue emerged

Participants pointed out that there were many similar opportunities for crop upgrading through processing in the country, the onus being on Tanzanian investors and farmers to organize themselves and cooperate with external investors so as to fully utilize the available opportunities. In addition, there was recognition that avocado processing is important because it is part of the current government vision on industrialization emphasizing on value addition to our products.

Presentation 4: ‘Understanding Knowledge Systems for Innovation: A Study on Business Ideas Developed by Business Incubators in Tanzania’. *By innocent Wawa, STIPRO Assistant Research Fellow*

The presentation focused on explaining why actors from the business-oriented centers (incubators) are able to generate practicable ideas (or solutions) than those from traditional R&D organizations whose systems for generating and developing knowledge and technologies have been in existence for quite sometimes now. Mr. Wawa found, from an analysis of three business-oriented incubators/centers, namely the Dar Teknohama Business Incubator (DTBi), KAKUTE, and TWENDE Centre, that knowledge systems in incubators are guided by structural programs and institutional arrangements that support a network of linked actors in terms of advocacy and lobbying, market access, input supply chain, training and technical assistance, technology and product development, financing mechanisms. These resources and services were found to be more useful in putting knowledge into actions.

Mr. Wawa concluded by saying that innovation centers are seen as potential channel for promoting inclusive growth in Tanzania in terms of technology transfer, increased productivity, and improved socio-economic status. Therefore it is interesting to see that KS are adopted by other KS such as Universities and R&D institutions.

General Discussion and Issue emerged

Most of the participants were in agreement that the arguments presented were clear. A representative from the COSTECH thanked the presenter and pointed out that there initiative of taking innovation centers to Universities. He informed that there are also program of establishing innovation Centre in Mwanza in collaboration with the local government authority.

Presentation 5: ‘Finance and Innovation: The Case of Micro and Small Sunflower Oil Processors’. *By Lanta Daniel, STIPRO Assistant Research Fellow*

The presentation focused on the status regarding financing of innovative activities in micro & small sunflower oil processing firms, types of sources of finance, mechanisms used, and challenges faced in providing, accessing and utilizing financial services. The paper uses sunflower oil processing as a case study to analyze how innovation is financed in small agro-processing enterprises in Tanzania, and how both private and public sector can intervene to improve the situation. It also analyses the current status of innovation in the targeted firms, and the role played by finances in shaping innovation decisions.

Ms. Lanta Daniel reported that, only 5 firms acquired finance and innovated. It was further informed, however, that bank regulations are not user friendly for the innovation purposes as many of the firms do not have collateral, repayment period is short, banks finance on tangible asserts, SIDO which is in charge of these firms has no enough resources to fulfill their mandate. Financial services from SIDO still do not differ much from the ones from banks in terms of requirements. She then concluded saying that finance availability alone is not a panacea for stimulating innovation. In order to enhance innovative activities, financing should be strategically placed.

General Discussion and Issue emerged

Participants were interested with the study and advised in depth study to be conducted to those five firms that acquired finance and innovated. Participants also advised the presenter to extend the same study in other crops.

Presentation 6: Integrated aquaculture based on sustainable water recirculating system for the Victoria Lake Basin (VicInAqua). By Musambya Mutambala, STIPRO Research Fellow

Mr. Mutambala started by pointing out that the VicInAqua is a medium-scale focused research project co-financed by the European Union's Horizon 2020 research and innovation Programme where STIPRO is part of the international consortium consisting of 11 partners from 7 different countries (Europe and Africa). The project aims at developing an integrated approach for water management by providing an integral, sustainable, innovative, cost effective and robust solution for water sanitation combined with the demand for clean water in aquaculture at Lake Victoria.

He further informed that the innovative core idea of VicInAqua is to develop, test and integrate novel technologies in a common system, which include development and screening of novel self-cleaning membranes; set-up of a small technical membrane bioreactor (MBR) to supply clean water to RAS and agriculture; integrated renewable energy power supply based on photovoltaic and biogas; and a robust and low-cost real-time sensor system for water management based on wireless network monitoring. Those are the R&D steps that will be combined with activities such as Environmental Impact Assessment and socio-economic studies; awareness raising, capacity building and knowledge transfer among local population; and fostering of gender equality and better integration of women in aquaculture activities. The presenter concluded by asking question such as how best should we transfer the technology? How should the technology fit best in the Tanzanian context?

General Discussion and Issue Emerged

Participants were interested with the project as it is associated to demand driven. Representative from ESRF informed that they are ready to support import of technology and transfer to local people. Participants pointed out that for the project to be sustainable; involvement of the government is necessary.

Closing Remarks

Dr. Adalgot Komba *STIPRO Board Chairman* closed the workshop and thanked the participants for their active participants and contributions.

All the presentations are available on STIPRO's website: [Click Here](#)

Appendix

Appendix 1: ARDW Programme



STIPRO ANNUAL RESEARCH DISSEMINATION WORKSHOP, 2017

TIME TABLE

DATE: Friday, 27TH OCTOBER, 2017

PLACE: CLASSIC HALL, BLUE PEARL HOTEL, UBUNGO PLAZA, DAR ES SALAAM

TIME	EVENT	RESPONSIBLE
08.30-09.00	REGISTRATION	ALL
WORKSHOP MODERATOR: MR. THEOPHILUS MLAKI-SENIOR ADVISOR, DIGITAL OPPORTUNITIES TRUST		
09.00-09.10	Welcome Remarks	Executive Director - STIPRO Dr. BitrinaDiyamett,
09.10-09.25	Opening Remarks	Guest of Honor: Ag MD- National Institute for Productivity (NIP) Mr. Novatus Massao
09.25-09.30	Vote of Thanks	Chairman – STIPRO Board Dr. Adalgot Komba
09.30-10.00	Conceptual paper 'Building innovation capabilities for agricultural development: The role of institutions'	STIPRO Senior Researcher Dr. Vera Florida Mugittu
10.00-10.30	General Discussion	All
10.30-10.40	Group Photo	All
10.40-11.10	TEA/COFFEE BREAK	ALL
11.10-11.30	Presentation I: 'Reforming Public Technology Intermediaries in Tanzania: A Policy Learning Study'	STIPRO Research Associate Dr. Gussai Sheikheldin
11.30-12.00	General Discussion	All
12.00-12.30	Presentation II: 'Improving the Position of Tanzanian Avocado Processors in the Global Value Chain: The role of functional upgrading and Innovation'	STIPRO Researcher Mr. Heric Thomas
12.30-13.00	General Discussion	All
13.00-14.10	LUNCH BREAK	ALL

14.10-14.30	Presentation III: 'Understanding Knowledge Systems for Innovation: A Study of Business Ideas Emanating from Innovation Centers in Tanzania'	STIPRO Researcher Mr. Innocent Wawa
14.30-15.00	General Discussion	All
15:00-15:20	Presentation IV: 'Finance and Innovation: The Case of Micro and Small Sunflower Oil Processors'	STIPRO Researcher Ms. Lanta Daniel
15.20-15.50	General Discussion	All
15:50-16:10	Presentation V: 'Integrated aquaculture Based on Sustainable Water Recirculating System for the Victoria Lake Basin'	STIPRO Researcher Mr. Musambya Mutambala
16:10-16:40	General Discussion	All
16:40-17:00	Closing remarks	STIPRO Board Member Prof Benedict Mongula
17:00	REFRESHMENTS AND DEPARTURE	ALL

Appendix 2: List of Participants

No.	Name	Gender	Position	Organization	Institution category	contact
1	Dr. John Willy Massoy	Male	CEO	TWV Strategic Solution LTD	Private sector	0754300143, 0714012123, events@tssl.co.tz
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