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**Reflections on selected interventions which were  
implemented in the United Republic of Tanzania  
with support from the  
United Nations Industrial Development Organization**

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# Introduction

The United Nations Industrial Development Organization (UNIDO) is one of the 23 UN agencies which collaborated with the United Republic of Tanzania to formulate and implement the United Nations Development Assistance Plan (UNDAP) 2011-16. This plan was aligned to the Five Years Development Plan 2011-2016, the Second National Strategy for Growth and Reduction of Poverty (MKUKUTA II) and the Second Zanzibar Strategy for Growth and Reduction of Poverty (MKUZA II), all of which point to the country's aspirations to attain a middle income status, as enunciated in the Tanzania Development Vision 2025 and the Zanzibar Development Vision 2020.

The plans and strategies intend to lift millions of Tanzanians from extreme poverty through education, decent job creation and social security, through unlocking the potential the country is endowed with in natural resources, agriculture and tourism and the youthful population.

UNIDO elaborated its involvement in UNDAP 2011-2016 through its Country Programme of Technical Cooperation with the United Republic of Tanzania (CPTC) 2011-2016. The CPTC had a number of projects some of which were formulated after its development and organized under three main components, namely

(i) Capacity Building for Industrial Policy Formulation, Implementation and Monitoring; (ii) Enterprises, Competitiveness, Investment and Trade Capacity Building; and (iii) Cleaner Production and Renewable Energy for Productive Uses. The CPTC was developed before the Inclusive and Sustainable Industrial Development (ISID) agenda, adopted by UNIDO's Member States in December 2013. However, the CPTC had a bearing on the four major areas where ISID can play a key role, namely economic transformation, employment creation, greater social inclusiveness and environmental sustainability.

This document is intended to provide reflections from some partners and beneficiaries, particularly the young women and men, on some of the UNIDO supported interventions, which were funded mainly through the One Fund of UNDAP, UNIDO Core Resources and Non-core Resources of UNIDO, which the organization received directly from different donors. UNIDO takes this opportunity to express sincere gratitude to all those who provided funding, partnered with UNIDO in the planning and implementation stages, provided information and support in the development of this document irrespective of whether or not the projects they were involved in are reflected in the document.

## 1

# Support given to key institutions collecting and interpreting data to enhance informed decision making on the industrialization agenda

*Numbers are everywhere around us but in the main, they are simply a mathematical abstraction to be ignored – until they are given both a name and a voice, or a two-dimensional presentation, thereby creating data with meaningful information. So, to possess data is to have intelligence at the finger tip, to be in the know – so to speak.*

Data, especially industrial data, is at the heart of endeavours towards an increase in industrial capacity as it can be used as evidence to back up proposals for action. However, important as it is, industrial data is often a resource to be concealed or restricted to protect advantage one industry may have over another. It is probably reasonable, therefore, to suggest that UNIDO was onto the money when it agreed to facilitate the setting up of Industrial Intelligence Units in the Ministry of Industry Trade and Investment in Tanzania Mainland and the Ministry of Trade Industry and Marketing in Zanzibar as an intervention towards industrial policy capacity building in Tanzania.



However, data only becomes suitable for making informed decisions once it has been analyzed – reason for another intervention, namely training of staff on industrial policy analysis, the outcome of which would culminate in the production of reports and policy briefs.

Valence Mutakyamirwa, head of the Industrial Intelligence Unit, which UNIDO helped in setting up in the Ministry of Industry Trade and Investment in 2012, said the organization's support was worthwhile given the unit's unique role in collecting and analyzing industrial statistics in the country. "Capacity building initiatives have enabled the country to have its own home-grown cadre in this area...a more sustainable solution instead of using foreign personnel who would come and go at huge cost." Mutakyamirwa, who was speaking from upcountry where he was gathering industrial data, said the unit plays an important role in industrial policy formulation as the exercise needs evidence presented by people with requisite skills.

Esther V. Mkenda, the other member of the unit, says the intervention in evidence-based industrial policy analysis helped participants from various institutions to get to grips with accessing local and international databases, in order to extract relevant data needed for analysis towards a given goal. "Apparently these databases have always been there but we did not know how to extract and apply them," she says. "This information is needed by many people...we do meet to share our information, be it through policy briefs or competitiveness report, with various stakeholders," she further says adding that the unit has also undertaken studies on youth involvement in agro-processing and employment in Iringa, Morogoro and Dodoma regions. According to her, country interventions were also undertaken at a regional level and the resulting East African Competitiveness Report is due for launch at end of 2016.

The Director of Industrial Policy in Zanzibar's Ministry of Trade Industry and Marketing, Saleh Suleiman Hamad, acknowledges the support Zanzibar got from UNIDO, saying the organization came in at the right moment, when there was great need for building local capacity for industrial development policy.

"We had to have personnel with skills to compare our performance with other comparable countries and such skills were provided by the UNIDO training, after which our people were able to collect and analyze statistics related to industrial inputs," he says.

"Training enabled us to set up an Industrial Intelligence Unit manned by our own people, the best of the

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cream from State University of Zanzibar, Planning and Statistics,” he says. The unit revealed challenges that hinder our performance vis-avis similarly sized countries and produced a report on industrial competitiveness, he adds. “[The report] is a very good output of their work and it highlighted various challenges as well as an action plan for addressing them.” “The cooperation between UNIDO and our people on the exercise was excellent,” he says.

Furthermore, Saleh says the next step was to select and train potential members of a task force which would review the Industrial Policy of 1998. “Eighteen people, to be drawn from both public and private sector as well as from academia, will undergo an intensive course, after which seven of the best will do the review and produce a draft Industrial Policy document,” Saleh says and adds: “In the past one individual, usually a foreigner, would produce such a document but we have seen that UNIDO’s approach is better as it is participatory and creates local capacity, both of which ensures sustainability.” According to Saleh, a draft Industrial Policy document, which will lead to the new, updated Industrial Policy, will be ready by November, 2016.

But any story about the makings of industrial policy would lack substance if it did not include industrial statistics, because policy must take on board the interplay of various industry-related variables that reflect the contribution of the sector to the country’s economy. Thus, for best results, UNIDO gave support in improving the country’s industrial statistical system by training staff of the National Bureau of Statistics and of the Office of Chief Government Statistician in Zanzibar on matters such as industrial data management and development of tools for industrial surveys.

According to the head of Industrial Statistics at the Office of Chief Government Statistics, Maulid Saleh Kombo, UNIDO supported his unit by way of training and acquisition of a number of equipment. “This particular

course gave us light towards the national industrial census of 2012, which was conducted efficiently and with much skill,” he says. Furthermore, he says staff members also attended a workshop on industrial statistics for industrial policy, which “was practical and was of much benefit [to the officers] as they were able to relate, for the first time, theory they had learned at university with practice in real life situations,” he says.

However, Kombo says his unit suffers from lack of stability in staffing. “Once one staff gets training in one area gets transferred to fill a vacancy elsewhere.” He cites the case of two ladies, Halima Mkanga Suleiman, and Tarhiyat Zahor Salum, head of government finance statistics and assistant head of transport and communication section, who - through good fortune - attended the training on industrial statistics. “Because of shortage of staff the two were brought to the industrial statistics unit, conducted the census of industrial production and annual survey of industrial production and later on got to attend producer price index training,” he says.

“We got training on industrial statistics and on how to compare statistics of different countries,” Halima says and adds with delight that she became so good at it that she was assigned to teach others despite the fact that up until then she knew “nothing” about industrial statistics.

However, the two women, who serve in the industrial statistics unit only when there is need, have a common view that time allocated for some activities such as using data program for analysis were too little for them to master some of the most important elements. “[Such activities] were always placed at the end of training and practice was allocated very little time,” Halima says.

Kombo wishes more support would come by way of attaching experts to the unit, especially in sampling.



## 2

# Study spots indigenous innovators poised to spur Tanzania's industrialization

*In identifying the 'enemies' of the nation's development soon after Independence, only three namely poverty, ignorance and disease were singled out. Of course, there were others and **Mwalimu Julius Nyerere** coined the phrase '**Kupanga ni kuchagua**', meaning 'to plan is to set out priorities,' to explain that amid many needs, one must set priorities.*

And so it is that over half a century later, *kupanga ni kuchagua* is still the guiding motto behind the crafting of Tanzania's Vision 2025, the blueprint steering the country to its stated desire of moving from a low-yield agricultural economy to "a semi-industrialized economy, led by a highly-productive agricultural sector". The three original enemies of the people are not yet vanquished, of course, but the priority this time around is industrialization – and UNIDO has been at hand to offer support in this endeavour.

It is said that generally industrialisation is influenced by, among others, an industrial policy as well as planning towards improving value chains and industrial linkages. The best approach, therefore, entails starting with knowledge about the state of local industry – production figures and the challenges it faces. Furthermore, given that the blueprint pins the outcome on "a highly-productive agricultural sector buttressed by supportive industrial and service activities," it was prudent to explore the local scene to identify entities which support or have potential to support those activities.

The UNIDO funded survey titled *Survey to Public Technology Intermediaries* brought to light nearly 50 institutions – public technology intermediaries – that support productive sectors of the economy. The Tanzania Industrial Competitiveness Report 2015 says these institutions "can help SMEs in linking up with medium and big enterprises who are traditionally the main drivers of the economy in terms of value addition, export and technology upgrading."

But establishing linkages between private companies and technology intermediaries may not suffice to bear the desired outcomes. In this regard, the report suggests making strategic investment to aid the activities of 'public' technology intermediaries towards innovation, research and development of a technically

competent workforce, "which firms rely on in absorbing and adapting technologies to local conditions."

The report lists a number of locally developed technologies in areas of efficient generation of energy and its use domestically and industrially; water pumps, dryers and furnaces; and school chalk production. Recorded technological innovations in agricultural sector include low cost farm implements suited for the Tanzania environment; new seed varieties for maize, beans, oranges, mangoes and tomatoes; new species and improved species of milking goats and cattle. The institutions have also produced equipment for cashew nut processing and sugar production; as well as edible oil expellers and extractors for dyes and glue from plants.

Innovative examples cited on health include production of pesticide-impregnated nets for malaria control; anti-malaria agents and anti-rust polymer from herbs and plants; mixtures for treatment of ulcers, cough and asthma; and nutritional supplements and immunity boosters.

However, the impressive results of individuals' and public institutions' innovation did not seem to impress private companies significantly as the study also uncovered limited linkages between such companies and public institutions which obviously "limit capacity of the industrial system to generate domestic value addition," says the report. Apparently, private companies have not been appreciating sufficiently that the services provided by these institutions, not only facilitate application of new technologies, but also proactively involve both farmers and manufacturers in design and improvement of technologies - activities which lead to a sustained process of building technology capability.

Equally important is to commercialize the innovations, not only for the purpose of recouping the costs invested in their research and development but basically to support established and emerging enterprises to access appropriate and affordable technologies for increased production of goods and services with acceptable quality and standards for safe use domestically and internationally. Technologies on health have immense potential to save the country from costly importation of the medicines it badly needs.



## 3

## Propelling local manufacture of shoes, leather products

*We have seen it all that imports dominate the local market and statistics show that our exports are too little, with Tanzania's share of manufactured exports to the world being a meager 0.012%, despite the existing human resource with potential to harness the natural resources that the country is endowed with. There now seems to be room for optimism, to have the situation transformed, at least in the leather industry.*

A revolution is at hand but realization and comprehension often come at the most insignificant of times. A visit to Dar es Salaam Institute of Technology's Mwanza campus excites you into becoming an optimist: There, you notice in the leather goods workshop, evidence of a determination to turn the humble animal hides into various leather products, including shoes, footballs, bags and purses.

You get a pleasant surprise as you hear from Albert Mmari, Head of the campus, that what you are seeing is just a microcosm of what lies ahead, what the Government, the Leather Association of Tanzania want to produce after UNIDO propelled an idea towards adding value to hides and skin produced in the country. It reminds you of Julius Nyerere's grand scheme for sustainable development.

The young people you see at this institute are full of the confidence – the one that comes with conviction that shoe making and leather products production is a worthwhile endeavour that creates jobs and good income.

You are told by Moukhtar Ali Ahmed, who heads the shoes and leather products department, that what you are witnessing are graduates at the end of a two-week training: young men and women busy stitching up footballs, shoes and various other leather products as they strive to meet challenges of a globalised economy.



*Training on football production at DIT-Mwanza Campus*

Briefly, you hold an interview with one Zachariah Gervas (25). Having started off as a cleaner at the campus, Zachariah says he was attracted to the training after he saw what others were producing after only a short stay at the institute. He took two 28-day courses each, namely, basic shoe making and basic leather making, which were conducted by a man he calls 'a tutor from UNIDO' in 2014. He later took a footwear design and pattern engineering course and he is now an instructor assistant. He owns a sewing machine and several tools which enable him to design and make shoes on order. It is noteworthy to mention that both Zachariah and his instructor were in fact wearing his products as depicted in the photograph.



*Zacharia and his tutor wearing shoes he made*

UNIDO's support to DIT Mwanza Campus on *Leather* is part of a much broader project known as Accelerated Agribusiness and Agro-industries Development Initiative (3ADI) in Tanzania – a *Value Chain Development* activity. Some of the interventions under the project include supplying DIT-Mwanza campus with materials for laboratory and library, equipment as well as training trainers who would go on to train entrepreneurs in producing shoe and leather products.

Reflecting on the various leather products on display in the workshop, you are reminded of the large sums of money spent on imported synthetic shoes and products so ubiquitous in many shops.

A visit to one quiet corner in Mwanza city reveals established craftsmen and some trainees at work, evidence of early seeds of a revolution in the leather products industry: Tauma Shoe Makers owned and directed by Juma Hamis Hussein (35). The establishment is made up of 15 craftsmen and five trainees. Individually, they had started off as self taught *fundis* but later on got special training at DIT Mwanza.



*Juma displaying the merchandise he manufactured*

UNIDO support to the leather sector is also acknowledged by Mr. Yoram Wakari of the Leather Association of Tanzania. A tour of LAT's workshop at Tabata, Dar es Salaam, shows the extent of UNIDO support by way of machine and tools which LAT is now satisfactorily and confidently using to train its members, who also use them in their production processes at low cost – acquisition of machines by individual enterprises could have been terribly expensive.

Mr. Wakari talks also on a recently launched Leather Sector Development Strategy of the United Republic of Tanzania, developed with support of the International Trade Center, as a multidimensional effort to promote the production of good hides, adding value to them and combating poverty among the youth by exposing them to skills and training towards the production of good and affordable leather goods to meet local market need and for export.

According to available data the footwear manufacturing sector, which was vibrant up to the early 1980s, has difficulty in sourcing local materials due to large

investments needed and severe competition from imports. But hope is building up as one can see from the city's various shoe manufacturing and repair kiosks that most people could do with more durable footwear. Tauma's Juma says: "I can assure you ... if you buy our shoes, you will only need to replace the sole two years or so later on because imported soles are of inferior material compared to uppers of the shoes, which are locally produced leather." Unfortunately, so far, investment in manufacturing shoe soles in Tanzania is minimal, if any.

LAT's broad vision sees opportunities which could make it possible to move to their site at Kibaha where they expect to erect an office and workshop that would allow for expansion of their activities. And the potential is there and could soon bear fruit once awareness effort purge consumers of their ignorance that lead them into believing that imports are better than locally produced goods.

Tanzania's current leather sector development strategy among others, envisions that by the year 2025, the country will produce high-quality hides and skins processed to finished leather, footwear and leather goods for domestic and export markets. On this aspect, Mr. Wakari expressed his high optimism for quick pick up of the leather sector to catch up with contribution of otherwise prominent subsectors like food, beverage and tobacco to Tanzania's manufacturing sector, banking on the already established foundation through efforts by government, individual entrepreneurs from the private sector, development partners such as UNIDO and industrial support organizations. Required, he cautions, are strong cooperation, coordination and commitment involving a large number of stakeholders in the leather industry.

## 4

## Business Information Centre at Zanzibar National Chamber of Commerce Industry and Agriculture improves business community's access to business information

*Livingstone House in Kinazini, Zanzibar, is home to the Business Information Centre (BIC). Established with technical assistance of UNIDO as an intervention towards enhancing the role of Zanzibar National Chamber of Commerce Industry and Agriculture (ZNCCIA), the BIC is a one-stop centre for entrepreneurs, who utilize its services to glean skills and information they need to advance their businesses. UNIDO saw need to offer support in inculcating in the minds of Zanzibar's upcoming entrepreneurs, a culture of IT use and continuous learning as a strategy for success.*

Samir Omar Haji, ICT Coordinator and trainer at the centre says there is now awareness that ICT is the heart of efficiency in business today. "Courses like ICT Essentials and Basic entrepreneurship helped in changing the mindset of most trainees who previously saw the computer as a tool for the elite and big companies," he says.

Most entrepreneurs who went in just to see what BIC had to offer ended up asking to be enrolled into courses. Asha Hassan Nassor, in business for eight years and without having used a computer before, attended two three-month ICT courses and now uses a computer proficiently. She still finds it worthwhile to go back from time to time for advice on ICT and on business, she says.

After gaining working knowledge and skills in record and book keeping, Asha was efficient enough to explore new business ideas which have enabled her to diversify from selling plant oils and perfumes. "I am soon going to open another shop to sell food items from the mainland," she says and adds: "My friends marvel at how I now see the computer as being inseparable to my business."

Perusing through the centre's feedback file, one sees more evidence of how BIC has impacted Zanzibar's small businesses. Responses on how the courses could be improved include "...more about finance and business management," "To know more on advertising." One trainee suggested that learners should be given a chance to practice all sessions in the class.

Anna Joseph Mtua, office assistant at Inaya Zanzibar, says the training on basic accounts and marketing increased her self confidence and means to appreciate that whoever possessed more information and knowledge was poised to do better in their business. "Now I feel more confident when explaining products at exhibitions," she says.

The BIC is one key linkage between ZNCCIA and private sector because of the facilities and services it offers.

"BIC has publicised ZNCCIA through the services it offers, in the past many people did not know about ZNCCIA," says Samir and adds: "Many members who had been inactive for a long time are now active through making use of BIC facilities and advice."

According to Samir, the two-year UNIDO project saw 35 training sessions being conducted in the past year, bringing in income of 2.4m/- by way of fees. He believes more people would turn up if the training were free. However, those who took action and paid the fee - which is highly subsidized so that many enterprises can afford it - have not regretted the reason why some have come back for follow up or completely other courses.

Depending on need, training is offered to individual entrepreneurs and also to associations. Ahmed Yusuf Alawy, owner and managing director of Alawy - Supplies, who has been producing napkins since 2007, says he took IT in business course to learn how to promote his business. "Soon after training I realised I needed a Facebook page to promote my business, which I now have," he says, quickly adding that he also has a website "although it is not yet launched." Ahmed also mentions that he had brought to the training two of his staff as well. However, he suggests that people who come to such courses should preferably have some basic business skills "because the speed of delivery is rather high."

It is easy to see that BIC has made commendable strides in creating awareness of how ICT improves the way of doing business. The centre also serves as a one stop centre where entrepreneurs can get all essential information on business such as on licensing, regulations and how to write business proposals. The centre also meets needs for business assessment and advice on subcontracting as well as on company upgrading plans, benchmarking and matchmaking.

According to Samir, UNIDO helped ZNCCIA - by way of BIC - in improving overall ICT infrastructure at Livingstone House including security and reliability of systems, data centre deployment and improvement, furniture as well as preparation of a manual *Starting a business in Zanzibar*, which contains information about how to start a business. Awaiting printing, the publication is geared to be a one-stop centre with all important information an entrepreneur may need.

UNIDO's support has brought about enthusiasm into doing business and has gone some distance in changing positively the mindset of Zanzibar's small and medium scale entrepreneurs about the role of ICT in business.



## 5

## Increasing chances for young graduates to get a job

*In an attempt to support government efforts on alleviating unemployment, UNIDO unveiled a matter on lack of people's eagerness to venture in a less trailed avenue: devising an internship programme in which young graduates worked with micro, small and medium enterprises (MSMEs) and both groups benefitted.*

Employability depends on one's education and relevant skills, particularly practical skills, as determined by the labour market. Employers, especially in the private sector, want potential employees to have both relevant education and practical skills. However, lack of the latter raises a fundamental concern which is interpreted as a mismatch between supply and demand in the labour market: the difference between what education institutions are providing and what the labour market demands.

While some enterprises think that many graduates are not skilled enough to be gainfully employed and are not equipped to confront challenges, some graduates keep harbouring a desire to be employed by large institutions. The latter is attributed not only to underrating the needs of MSMEs for skills but also their capacity to pay attractive remunerations. The MSMEs, also, feel that they cannot afford the graduates!

On the contrary to the alluded notions of graduates and the enterprises, other parties consider the quality of tertiary education in the country to be moderate, with potential to suit the needs of the market - if the practical experience aspect is tackled. That is the root of UNIDO's Internship Programme, that was devised and implemented in the attempt to address the question of imparting the young graduates in Tanzania with practical experience.

Specifically, UNIDO demonstrated the potential of internship to solving the youth unemployment problem by leveraging on the co-existence of unemployed young graduates on one hand and the numerous MSMEs on the other. Tillmann Guenther, UNIDO International Coordinator for the Enhancing Youth Employability and Entrepreneurship in Tanzania Project, says: "we know that enterprises require both capital and skills to grow, and that graduates are there, needing work experience to not only apply their skills, but also to be exposed to business management and practices to enhance their chances to get a job". "So", he adds, "the

internship programme aimed at matching the two, that is, graduates and enterprises."

In that endeavour, UNIDO believed that a carefully designed interaction of MSMEs and unemployed fresh graduates would produce the desired outcome, namely employability of the nation's youths. UNIDO collaborated with Mzumbe University's Dar es Salaam City Campus in carrying out a nationwide internship program, by placing graduates into agro-processing MSMEs based on proper matching of the two groups, accompanied by mentoring.

Impressive results were realised from the programme, with some exceeding expectation. For example, 224 interns were placed in 86 SMEs against the target of 150, whereby 119 interns completed the three-month internship. And, at the end of the programme, the young graduates placed in different MSMEs acquired relevant practical skills. A tracer study conducted at the end of the program indicates that 55 out of 119 interns were retained in the labour market by either staying at the MSME or getting a job elsewhere.



*Joseph Ford Mwaipopo, working with the Punching Machine at MAWANI Signs Co. Limited*

Joseph Ford Mwaipopo, who was placed at MAWANI Signs, and where he now works as a full-time employee, praises the internship saying it has helped him to experience both technical and social skills at work.

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On the part of the MSME, Mr. Paschal Kimaro, the Executive Director of MAWANI, highlights that he had two interns through the programme and found that skills of one of them was vital in adding value to his enterprise's productivity by complimenting what they already had. It is for this reason the SME hired Joseph on completion of the internship programme.

Mr. Kimaro adds that the second intern was also good, with skills suitable to enhance performance of his MSME. However, that intern was employed by another company before the end of the internship program. Even though the relationship between the former intern and MAWANI Ltd still exists as he still provides part time services to the enterprise.

On his part, Godlisten Ayo, one of the programme beneficiaries, says: "I had lost hope and was wondering whether I can be employed as everywhere I went the challenge was the issue of experience whereas there is no school for experience." He adds: "through the UNIDO's internship programme, I gained a lot of experience and exposure and now I have the courage even to establish my own business". Godlisten thinks internship is solution number one for solving youth unemployment. After the internship programme Godlisten and his other colleagues easily secured employment at AZAM Dairy plant. He attributes this eventuality to UNIDO's internship programme.

Helena Gerald, who was placed and still works at Lenny Products Co. Limited, says her role has helped her to gain a working experience in store keeping and product costing. Management of Lenny Products Company Limited has opted to retain Helena because they appreciate her skills and the support she is providing. Obeid Musiba, a director in the company, says in the beginning some graduate accountants could not even fill-in the ledger books but, at the end, some realized great effects in the short time of their internship.

The internship program has also been vital in raising the understanding of technocrats and professionals, including the academia, on the need to impart graduates with necessary practical skills to suit existing needs, including those expressed by SMEs and other industries. In that vein, the Prime Minister's Office (PMO) requested for support from UNIDO in developing the National Internship Framework (NIF) based on best practices from the internship program. With the NIF, the Government could facilitate internship programs for graduates throughout the country by providing a framework that sets out rules and regulations to guide internship programme design, development and implementation by various actors such as private sector organizations.

Despite the successes, however, the program experienced some challenges. A young graduate, Mawazo Mathias, who now works at Bank of Africa in Arusha, says, "UNIDO has been a foundation of my success and I will continue to encourage my friends to enrol in similar programs". He, however, cited lack of allowances to the interns to be a challenge, which Tillmann Guenther did also acknowledge. He, however, says the question of paying allowances to interns during the period of their attachment was left to the host institution and that the interns were informed accordingly. He adds that "this was to reduce subsidies and see whether the market responds".

According to Guenther, the internship programme brought about new ideas and knowledge and most interns gained confidence that the knowledge and skills they possessed were assets which they could quickly utilize to increase their chances of getting a job.

The interventions unveiled useful knowledge and demonstrated that interns in small enterprises can make a difference, possibly more than they can in a large business and that growth of small enterprises would in turn lead to employment.

# 6

## Cluster approach makes its mark on adding value to local produce

*Adding value to a product or service is to upgrade or to enhance it before offering it to customers. The consumer sees the point of choosing this and not that – although the two can be similar and serving the same purpose. The 'extra bit' which has changed the familiar to something more, is the value added.*

Value added - or absence of it, can make or break an industry or service provider involved. According to Margaret Ikongwe, Chief Technologist at UNIDO Dar es Salaam office, responsible for the Tanzania Industrial Upgrading and Modernization Project (TIUMP), there are many ways of adding value to industry, including building institutional and technical capacity to deliver services to the relevant industry and intervening positively in the product's value chain.

Availability of food to the people is probably the most basic undertaking in any development endeavors and so in aiding Tanzania's move towards industrialization, UNIDO was spot on in choosing to seek ways of adding value to industries which impact food production positively.

Several interventions were implemented through TIUMP but initial efforts went on improving the technical capacities of two players with influence on the local industry, namely Tanzania Industrial Research and Development Organisation and Tanzania Engineering and Manufacturing Design Organisation. Value was added through the supply of laboratory equipment for food proximate analysis to the former and designing software for the latter. Next was to improve institutional setup - which consisted of training 50 consultants in upgrading methodology, establishing an upgrading unit at TIRDO as well as drawing up an upgrading model based on clustering demonstrated with the Dodoma sunflower oil processors.

Then, according to Ikongwe, UNIDO intervened in various ways, including providing critical and holistic diagnosis of each processing company or institution by a team of experts, to determine operational gaps in areas of human resource management; financial management; marketing; production technology; process control and hygiene and environmental issues. Several operational gaps were identified, which most processors acknowledge, in addition to the importance of refining sunflower oil and the necessity to move their operations out of residential areas..

Subsequently, UNIDO supported each individual enterprise in preparing its realistic upgrading plan, which could be implemented in the most efficient and practical manner, to address the gaps seen. In a way, however, the majority of sunflower crushers were found to be too small to allow conducting a comprehensive upgrading procedure for each individually.

Implementation of the enterprises' upgrading plans started with interventions found to be logical and doable at individual company level, and concurrently, advising them on what they could do collaboratively. On the latter, through their association – CEZOSOPA – the crushers hired a technologist who is servicing them in a group since none of them could individually afford one. Also, through CEZOSOPA, the crushers are currently sharing a laboratory - with equipment supplied by UNIDO – and are wishing to engage an accountant.

On gaps found unjustifiable to deal with at individual company level, UNIDO gave the processors a prudent advice to form a cluster. In that vein and the desire to move to industrially acceptable premises - again through CEZOSOPA – the crushers acquired 75 acres of land at Chamwino on which they will establish a sunflower industrial park, with common facilities helping them to exploit economies of scale.

According to Ikongwe, the agro-processing industry generally is suffering a severe shortage of skills necessary to improve performance – “but this fact is not apparent to processors who believe that their number one need is capital as they could still sell all of their produce despite its lack of certification by relevant authorities.” Quantities of the products were also small since the mills were operating at below 30 percent of their installed capacity, she added.

It is evident that the program brought about significant development as more companies joined and adopted better ways of processing sunflower oil.

Ikongwe says linking one processor to another is the most effective intervention because, while they need professional services, individually they cannot afford them and this suggests linking up processors which could pay for common services jointly. In addition, the link can facilitate using common refiner, fortification, packaging, marketing and procurement of inputs.



*A sunflower oil processor in Dodoma explaining to Alvaro Rodriguez, the UN Resident Coordinator in Tanzania, how the refiner introduced by UNIDO in the country works*

With its embracement of the cluster approach as an effective way of beating challenges which small enterprises suffer from working individually in isolation, UNIDO supported establishment of another cluster, involved in value addition to cashew nut, Tanzania's recognized key foreign exchange earner, which is mainly exported in raw form.

"At the beginning a number of micro and small scale cashew nut processing enterprises were identified in the regions of Mtwara and Lindi in southern Tanzania, and also the constraints which hindered them from growing to at least small and medium scale levels," said Gerald Runyoro, UNIDO National Program Officer.

He went on to narrate a myriad of constraints which include application of rudimentary technology - due to lack of awareness on alternative affordable and appropriate technologies. However, some entrepreneurs were aware of better cashew nut processing technologies, which they had seen in

earlier government-owned factories. Yet others, aware of technologies which suit small scale processing, lamented about unavailability of such technologies and high cost, if available. "Although the processors were expected to mention lack of appropriate skills to handle the processing facilities and to manage business, surprisingly they did not," adds Mr. Runyoro.

Some of the identified enterprises were scattered and far from the Mtwara Municipality and Lindi town and these were assisted in a way of training and provision of equipment, but continued to operate individually. The concept of a cluster formation sounded appropriate for three Mtwara Municipal based groups, which had their businesses already located in the premises of the Small Industries Development Organisation in Mtwara - but each group working individually and lacking in terms of equipment and skills.

This intervention was rather straightforward as UNIDO rehabilitated a building belonging to SIDO, procured appropriate cashew nut processing equipment and machines according to production targets, and conducted training on a range of subjects including good manufacturing practices, financial management and book keeping, and business management including marketing. On equipment, two kinds of ownership exist: some which belong to individual groups, of which each group uses a good part of the installed or processing capacity, and those used commonly by the entire cluster because their capacity is considerably higher for individual groups to use efficiently - the issues of economies of scale.

The results came fast as production and packaging of the nuts is now so up to the mark that some of the products have certification of the Tanzania Bureau of Standards, barcodes provided by the Global Standards 1 Tanzania, and have access to a wider market in Tanzania and neighbouring countries including supplying the produce to supermarkets.



## 7

## Improved slaughtering boosts quality of meat, business growth

*The fact that traditional systems applied to slaughtering livestock in local areas are not hygienic and instigates loss of quality of both meat and skin is undeniable. Also, often, meat processors do not distinguish between parts of the cow or shoat to be used for different, specific purposes. Another important feature of such systems, which is ignored by many people, is physical abuse of animals before being slaughtered: The abuse excites the animal, leading to compromising quality of the meat, often rendering it stiff.*

With cognizance of these facts, UNIDO has been collaborating with Mbeya and Iringa District Councils, as well as Iringa Municipal Council, to upgrade selected slaughter facilities to bring about improvements in the way of processing red meat. In the process, UNIDO funded fully construction of two slaughter slabs and provided them with equipment whereas, for the abattoirs, the councils constructed the buildings with UNIDO providing equipment.



*Slaughter shed at Nzihi village, Iringa District, before upgrading*



*A slaughter slab at Nzihi village, Iringa District, after upgrading*

The operators and prospective managers of the facilities, and butcheries, received a wide range of training on slaughtering, meat and skin handling and managing the meat business. Although the abattoirs are yet to be operational, the interventions have demonstrated much better alternative technologies and systems available for meat processing.

The improvements, also, have potential to increase slaughter capacities of the facilities thereby widening livestock keepers' market for their animals and opening up additional employment opportunities. One may wonder: "who would consume the much larger volumes of meat resulting from the increased slaughter capacity" or, "will increased slaughter capacity be utilized considering the prevailing populations of Iringa Municipal and Mbeya City"?

While thinking within the geographical boundaries of the villages of Nzihi in Iringa District and Songwe in Mbeya District where slaughter slabs have been upgraded, the main result is the availability of hygienically prepared beef for communities in the vicinity of the villages. And the early innovator butcheries', following training they received on good meat handling at the Vocational Education Training Authority in Dodoma, through UNIDO sponsorship, have complemented sanitation improvements of the slabs by upgrading their butchers and adopted use of protective clothing to ensure beef prepared hygienically at the slaughter slab remain safe and hygienic in their shops until is passed to the consumer.





*Alfred's butchery before he received meat handling training at VETA, Dodoma*

For butchers the cost of improving their shops is not a wasted investment. Alfred Kyando of Nzihi village, a beneficiary of the two weeks training at VETA in Dodoma, sees one cow being sold out in one or two days compared to 4 or 5 previously because improvements in hygiene of his operating premises and quality of meat has led to an increase in the customer base and, subsequently, boosting profits which he refers to as about 70% increase in revenue.



*Alfred's shop after receiving meat handling training at VETA, Dodoma*

Fred Malekela at BIG Butcher in Iringa municipality, another beneficiary of the UNIDO sponsored training at VETA in Dodoma, also reported an increment in the quantity of meat he sells after he applied the knowledge and skills from the training. He testifies that, to date, his daily sales are up to 150 kg of meat as opposed to 70 kg sold before. He also cites his experience on meat loss reduction from about 3 kg daily caused by use of poor processing facilities to approximately a quarter of kilogramme per day, thanks to the investment he has done in meat cutting machines and freezers.

For Mbeya District and Iringa Municipality, response to the above questions would be a reference to economic theory which suggests that both urbanization and increases of incomes influence increased meat consumption.

In this era of globalization, which is witnessing strengthening of economic regional blocks and enhancement of international trade, a limited market within the district or even national boundaries is no longer an issue. Wide and ready meat markets exist worldwide - starting with neighbours such as Zambia to the United Arab Emirates and as far as China. With local and foreign markets, when fully operational, the two abattoirs will provide the local governments of Iringa municipality and Mbeya district with stable and sustainable revenue. Required, however, is not only on satisfying quality and standards requirements but also supplying the product in sustainably required and often large quantities. These are among the basic considerations that the upgrading of abattoirs in Iringa and Mbeya were aiming at.



*A modern abattoir being constructed by the Iringa Municipal Council*

The red meat value chain is characterized by many challenges in Tanzania: poor conditions for most slaughtering and meat handling equipment and facilities; ineffective extension services for meat quality assurance basically because staff are poorly equipped and services underfunded; and limited butchers' and

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meat traders awareness, skills and knowledge, which make them perceive involvement of extension officers and regulatory institutions like the Tanzania Food and Drugs Authority as controllers rather than supporters to development of the meat industry in the country. Furthermore, capital limitations - coupled with some consumers embracing consumption of less hygienic meat due to their low purchasing power and awareness on food hygiene and safety issues - incite dealers to stick to traditional systems applied to slaughtering livestock.

According to the chairwoman of the Tanzania Meat Board, Ms. Susan Kiango, although the UNIDO supported abattoirs are yet to start operations, it is evident that the intervention has noteworthy potential to impact positively on the livelihoods of communities and has already incited other districts far afield in the country to work on incorporating abattoir upgrading or construction in their development plans.





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The awareness raising interventions have started to generate outcomes. Mariam M. B. Mbekenga of Lukeisa Enterprise, says that through the use of the simplified export manual, she was able to understand the requirements and procedures for exporting products. She then participated in the *Expo Milano* and successfully exported 60kg of spices needed for the Expo Milano trade fair in 2015.

Although trade in live animals was not the focus of the workshops and manuals, the interventions have contributed to raising awareness of livestock exporters on the export business. According to the Executive Director of Tanzania Exporters Association (TANEXA), Mr. Peter Lanya, the livestock exporters at border points are now aware of actual costs and fees associated with livestock exportation. This has resulted in the reduction of illegality in the exportation of livestock, as exporters have realized that the fee they pay is actually affordable and contributes to government revenue, vis-avis the hidden costs and risks embedded in illegal, informal livestock trade.

Mr. Lanya, however, highlights one challenge which some members of his institution have voiced in relation to using one of the original manuals, which was developed collaboratively by UNIDO and TANEXA, namely that the English language used in the manual is not appropriate to most of the people targeted. UNIDO responded by facilitating translation of the document into Kiswahili in a bid to alleviate the language barrier in transmitting information.

GS 1 Tanzania acknowledges that awareness raising interventions supported by UNIDO have complemented efforts made by government, development partners and other stakeholders, all of which have influenced enterprises and companies to register themselves and their products with GS 1 Tanzania. Statistics provided by GS 1 Tanzania show that, as of October 2016, 890 enterprises and companies had been registered, from only 1 in 2011, while the products having barcodes have increased to around 15,000.

## 9

## Small hydropower plants benefit investors, households isolated from national grid

*It is great irony that, while Tanzania has many diverse energy sources, the vast majority of its 45 million people lack access to electricity. In fact, the rural population is nearly completely excluded from this source of energy. This state of affairs suggests having interventions in place, if the all-important sustainable development is to reach rural areas where the majority of people live, far removed from the electricity grid.*

Workable strategies to bring power to the rural areas include a UNIDO-supported rural electrification project involving three main interventions, namely, promoting private sector investment in mini grids of small hydropower electrical generation and installation of equipment; training of technicians to fabricate mini hydro-power turbines; and supported policy development on mini grids small hydropower aspects.

The project is supporting the private sector in developing eight small hydropower sites located in the regions of Ruvuma, Morogoro, Iringa and Arusha, with combined capacity to generate nearly 4.9 MW. UNIDO's role is only limited to procuring and installing electromechanical equipment like the turbines and

generators, and offering training which include a study tour of selected technicians to Malaysia to learn fabrication of micro turbines - with the developers taking care of other development elements particularly those related to infrastructure.

Generation of 500 KW is already commissioned at the Andoya Hydropower site at Kifakara village, about 17 km from Mbinga town in Ruvuma Region, with nearly 40% of the power feeding the national grid and distributed in Mbinga town, and the rest being directly supplied to more than 250 households in Kifakara and other two neighbouring villages. Andoya has completed all the civil works for a second generation set, also of 500 KW, which is under procurement.

Mr. Alex Menas Andoya, who became managing director of Andoya Hydro Electric Power Limited from December 2014, said, "UNIDO support was crucial in reaching this milestone [of installing and commissioning the first 500 KW plant] and the impact of a reliable electric power to Mbinga town and surrounding villages is huge".



*Andoya mini hydropower, Kifakara village, Mbinga District: Dam and headrace canal*



*Power distribution line for Andoya mini hydropower , Kifakara village, Mbinga District*

Now, thanks to Andoya power, Mbinga town is no longer experiencing frequent power cuts that could last up to 5 days due to breakdown of TANESCO's diesel generators. General Manager of Mbinga Coffee Curing Co. Ltd., Jonas Mbunda said, "Andoya Electricity has made a difference in Mbinga town and now we enjoy a 24 hours electricity supply which has impacted positively both the three agro-processing industries located in Mbinga and the coffee farmers."

Mbunda added that with Andoya electricity, Mbinga Coffee Curing power costs are now down to 10 - 15% of operating costs from the average of 25% with TANESCO power and 40% before TANESCO, which had made the company unprofitable. Furthermore, the company is now able to process coffee earlier to enable farmers get better prices in the market, he said.

A visit to Kifakara village revealed one happy John Nathaniel Ndunguru, a consumer of electricity from Andoya power, who said he has experienced "big, positive changes after connecting his premises to Andoya's electricity." He has abandoned his small petrol powered generator and has established a modern poultry business, he said, "because of availability of clean and cheaper power."

Another site supported under the rural electrification project involve Kiliflora Limited, a large scale company growing flowers at Usa River in Arusha, which is currently consuming over 795,808 KwH of electricity

per annum, supplied by both TANESCO and own diesel generators. Mr. Jerry E. C. Goh, Executive Director of Kiliflora Ltd, says his company consumes about 20,000 litres of diesel to run its generators in one month "and that is alongside unreliable TANESCO power."

Kiliflora had been considering switching to alternative power sources to lower the otherwise exorbitant power cost, and a small hydropower plant was the answer, particularly in view of existence of a small perennial river in the vicinity of the farm. It was an opportunity one would not afford to miss when discussions with UNIDO showed brightness at the end of a tunnel, that the UN agency would commit to provide electromechanical equipment worth over US\$400,000, part of over US\$2 million required to develop a mini hydropower plant to generate 230 KW.

A 230 KW project at Kiliflora is now in the end-phase of construction whereby, in September 2016, technicians and builders were busy installing electromechanical equipment and completing construction of the power house which will consist of two turbines and two power generators, all which have been delivered on site by UNIDO. "We are eager to start using our cheaper power and we have committed adequate resources to this project," said Mr. Jerry. Commissioning is expected to be before end of 2016 to power Kiliflora farm operations, which employ over 1,000 people, and community social facilities at Sanganano Village, located about 4 km from the project site.





*Kiliflora Project: Turbine and generator installation*

A wide range of equipment with total capacity of 1,331MW has already been delivered at the remaining five sites.



*Turbine for hydropower project in Njombe*

Worthy a mention is Mr. Justin Mungure of Usa River, Arusha, a self-taught innovator and tinker, who stopped working as a car mechanic in 2003 to go into electrical works. Pushed by a lack of electricity in his village and his keenness to have it, he set out to fabricate a micro hydropower turbine in the year 2005 and, after some learning and modifications, he accomplished his goal in 2008. The micro-hydropower turbine, which he successfully installed in a river stream near his home, was able to generate 1KW of electricity. He then connected nine neighboring households onto the system and supplies them with power at a small fee, which he uses to finance maintenance.

trainings offered by CoET and sponsored on the study tour to Indonesia with other technicians, where he got the skills to upgrade his micro-hydropower plant, which is currently serving 14 households.

Following the impressive innovation, UNIDO and the College of Engineering and Technology of the University of Dar es Salaam vowed to support Mungure should any opportunity open up. He participated in various

The Tanzania National Parks Authority (TANAPA) later got information about Mr. Mungure and, on being satisfied with his abilities and credentials, the institution commissioned him to design, fabricate and install at Arusha National Park an 80 KW hydropower turbine under its \$300,000 worth of project. With support of CoET Mungure has successfully executed the work, with the mini-hydropower plant working, awaiting official commissioning in the near future. The mini-hydropower plant will completely replace the diesel generators and is expected to cut that cost down by approximately 50% and reduce pollution.



*Justin Mungure's TANAPA Project – water intake and power station*

“We have great faith with capacity of Mr. Mungure and we are very happy with the work done so far,” said Ms. Steria Raphael Ndaga, the Arusha National Park Chief Warden.

Mr. Mungure, who is currently fabricating another hydropower turbine in his Makumira workshop in Arusha Region, regards highly the help he has had from UNIDO, especially the sponsorship in 2014 to participate in a three-week study tour and training on small hydropower turbine manufacturing training in Indonesia. “The training and sharing of skills with innovators from different countries and visits to workshops enabled me execute TANAPA’s small hydro power project,” Mungure said.

To ensure relevant stakeholders are fully aware of the project and actively involved and participating effectively in its planning and implementation, also for sustainability of the interventions and results, two essential instruments were put in place: creating the Steering Committee to foresee all matters concerning the project and establishing a Center of Excellence at the College of Engineering and Technology, of University of Dar es Salaam.

“Rural Energy Agency is one of the very important stakeholders in the UNIDO supported Mini hydropower Mini Grids project”, stated Eng. Bengiel H. Msofe, Director Technical Services, Rural Energy Agency (REA). This is due to the fact that “we have a similar goal of promoting modern energy access to rural population and we complement efforts to support energy projects and energy projects developers,” he said.

According to him REA is involved in almost all UNIDO supported energy areas. “Most of UNIDO small

hydropower projects are very well coordinated and are successfully implemented and demonstrate how United Nations agencies can successfully work with Government institutions and the private sector,” Eng. Msofe said.

The Small Hydropower Centre at the College of Engineering and Technology of the University of Dar es Salaam, was established to spearhead fast development of small hydropower stations of about 480 MW in Tanzania. The centre conducts research, training, and supports developers and technicians on a number of aspects related to the project, such as fabrication of equipment and disseminates information on small hydropower mini grids. During the project inception phase, two centre staff members received training on technical aspects of hydropower project and management in Vienna, Austria and other two staff members received training on turbines manufacturing in Indonesia in May 2014. The center, consequently, received a license for technology transfer for manufacturing of T15 cross flow turbines. So far the centre has been able to manufacture two improved turbines, which were to be installed in Njombe.

Thereafter 40 trainers of nine river basin authorities were trained by the center in potential hydropower sites identification. And training and retraining has been going on, with the number of persons trained and supported by the center in difference mini hydropower grids aspects reaching over 20 to date.

“The centre will continue supporting private developers’ pushing the development of small hydropower projects in the country as a viable solution to bridge the energy gap especially in rural communities” said the centre’s Eng. Shija Mzobora.



# 10

## Implementation of national and international environmental obligations supported

*The many global environmental challenges of our time includes ozone layer depletion, climate change and the Persistent Organic Pollutants (POPs) for which the countries of the world have reached agreements and devised protocols they can use to jointly fight these scourges and reduce their adverse impacts on all species.*

The ozone layer protects humans and other organisms against ultraviolet (UV) radiation from the sun. Its depletion leads to an increased level of UV radiations reaching the earth. The depletion is caused mostly by man-made chemicals used in a wide range of industrial and consumer applications like refrigerators, air conditioners and fire extinguishers. Through the use of such appliances the chemicals, which include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, carbon tetrachloride and methyl bromide, are released into the atmosphere! In 1987, the international community established the Montreal Protocol, an international treaty, designed to protect the ozone layer by phasing out the production and consumption of numerous substances that are responsible for the ozone layer depletion.

Another important international treaty is the Stockholm Convention, designed to protect human health and the environment from the harmful effects of POPs, adopted in 2001. Parties to the convention are required to take measures to eliminate or restrict the production and use of such hazardous chemicals (POPs), which are organic chemical substances that persist in the environment, bioaccumulate through the food chain, and pose a risk of causing adverse effects to human health and the environment. In Tanzania, POPs have been manifested in forms of some pesticides and PCBs found in oils used in electrical equipment such as transformers, capacitors and switch gears.

Specific effects of POPs can include cancer, allergies and hypersensitivity, damage to the central and peripheral nervous systems, reproductive disorders,

and disruption of the immune system. Some POPs are also considered to be endocrine disrupters, which, by altering the hormonal system, can damage the reproductive and immune systems of exposed individuals as well as their offspring.

To be able to implement both the Protocol and the Convention, the Government of the United Republic of Tanzania needed to put in place legal, organizational and environmental management measures, including substantive technological changes. UNIDO has offered the government with support, mainly through Vice Presidents Office - Division of Environment (VPO-DoE) and the Tanzania Cleaner Production Center (TCPC), for implementing, by both private and public institutions, and meet some obligations under the two treaties.

Specifically on the Montreal Protocol, various capacity building interventions have been implemented including sponsoring two refrigeration technicians on a study tours to ...; training of trainers - involving technicians, artisans and businesses - on phasing out and handling of HCFC gases; and training - by the trained technicians - of over 20 other on the subject matter. After training, the technicians were provided with gas capture equipment and cylinders required to apply practically the knowledge they gained through training. In consideration of the strategic role of VETA in training technicians including those involved in refrigeration, six VETA Centers were also provided with gas recycling units for cleaning recovered refrigerants for re-use.

Mr. Said Mziwanda, instructor at VETA Chang'ombe, says: "With the equipment we got, we were able to give practical training to over 600 students since 2012 and a recent assessment involving Dar es Salaam refrigeration repair workshops shows significant awareness on harmful refrigerants like R12 and some are doing gas recovery and re-use". He adds: "There is [now] a big shift in perception among our trainees on importance of proper handling of refrigerants".



*Saidi Mziwanda shows a refrigerant recovery unit and a recovery cylinder at VETA Chang'ombe, Dar es Salaam*

Said also said that some customers and refrigeration repair workshop owners are now aware of using refrigerant identifier to test refrigerants before use. This knowledge has twin advantages: to help determine if the refrigerants used are new ones, which are less harmful to the ozone layer, or not. The second reason is to ensure protecting compressors, which can be damaged if traditional ozone depleting chemicals are used in modern appliances. Said concludes that: “We encourage repair workshops to capture gases into recovery cylinders; however, there are no facilities

to clean the gases for re-use or for destruction of the spent refrigerants”.

Mr. Victor Akim, National Project Coordinator with UNIDO, says a number of interventions concerning the Stockholm Convention have been supported. He points out that UNIDO provided the Cleaner Production Centre of Tanzania (CPCT) with a mobile unit for the assessment of pollutants from industrial activities, waste water and solid waste dumps.



*A mobile laboratory of the Cleaner Production Centre of Tanzania (CPCT)*

“Furthermore”, adds Mr Akim, “With UNIDO support the CPTC has also been able to conduct Environmental Impact Assessments (EIAs), Resource Efficient and Cleaner Production (RECP) assessments in enterprises and waste management assessments. The center conducted over 110 assessments during the period 2011-2016”. During the same period 294 personnel from 178 enterprises, and other stakeholders, were trained on RECP. A related activity is a solid waste assessment in Zanzibar tourism area for Zanzibar Municipality, which proposed a waste management

plan that included landfills, sorting and recycling of waste. A compost market analysis in Zanzibar was done to determine viability of a waste recycling business for compost and other products.

Prof. Cleophas I. C. Migiro, Executive Director of Cleaner Production Centre of Tanzania (CPCT), lauds UNIDO’s support in tackling adverse environment and climate changes although he expressed concern about meager resources and actions of stakeholders in implementing the environmental programs saying, for

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example, that having only one mobile unit out of at least 20 needed in Tanzania was bound to undermine the checking of hazardous pollutants and waste assessments, regardless of concerted effort of the centre.

Another CPCT accomplishment with UNIDO support is E-Waste Assessment and Dismantling Programme where CPCT helped 2 private companies in establishing e-waste collection and dismantling businesses, and support was given for EIAs and registration by NEMC. Ms. Anne Mgashi said that e-waste collection, dismantling and exporting activities are now on-going

with Chilambo General Traders Ltd being a registered E-waste collector, transporter and store, and Ok Plast Ltd a registered dismantler of e-devices and exporter of e-waste.

Finally, UNIDO supported Tanzania through Vice President's Office with the Review of the National Implementation Plan (NIP) on Persistent Organic Pollutants (POPs) of 2005 now being finalized and the financing and technical support for destruction of harmful chemicals (POPs) stored at the Horticultural Research and Training Institute Tengeru - ARUSHA in Arusha.

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