



Round Table Discussion on Foreign Direct Investment and Local Technological and Innovation Capability Building

1st July 2014 at COSTECH

Rapporteurs' Report¹

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List of Abbreviations

COSTECH	Commission for Science and Technology
EPZ	Economic Processing Zone
FDI	Foreign Direct Investment
NEMC	National Environmental Management Council
MNE	Multinational Enterprises
RPI	Research Policy Institute
STIPRO	Science, Technology and Innovation Policy Research Organization
TIC	Tanzania Investment Centre
UAE	United Arab Emirates
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organization
UNU-MERIT	United Nations University Maastricht Economic and Social Research Institute on Innovation and Technology
VETA	Vocational Education Training Authority

1.0 Introduction

The Science, Technology and Innovation Policy Research Organisation (STIPRO) in collaboration with the Tanzania Commission for Science and Technology (COSTECH) organized a round table discussion entitled *Foreign Direct Investment (FDI) and Local Technological Capability Building in Tanzania* which took place at the COSTECH premises on 1st July 2014. The roundtable brought together representatives from public and private institutions as well as academia to discuss better ways of building local technological capabilities around agro-industrial and extractive industries through FDI. This report is structured to reflect the agenda and represents a summary of the discussion providing an overview of what was addressed for a half day discussion.

1.1 Context for the Roundtable

Foreign Direct Investment (FDI) is becoming an increasingly significant catalyst for economic development. Specifically, it has the potential to deliver a number of important contributions to economic development in terms of investment capital, employment, foreign exchange, government revenues, development of local enterprises and technology among others. However, it is believed that the technology aspect that brings most valuable contribution of FDI in the long-run growth and sustainable development in host economies. Among other things, FDI is presumed to be an important channel through which international diffusion of knowledge and technology takes place, and is especially regarded as one of the driving forces in integrating developing countries into the globalization process that has characterized the world economy over the past decades. FDI is thought to be the easiest way to build local technological capabilities for these countries. Several authors including Dunning (1993), Lall (1996), Narula (2001), Narula and Dunning (2000) have argued that foreign investors in the form of Multi-national Enterprises (MNEs) have the potential to transfer technological, organizational and managerial practices to developing countries, which may, in the long run, lead to higher technological capabilities and innovation. This in turn may lead to economic growth in these countries. Examples of countries that have successfully made use of FDI in building their local technological capabilities include Malaysia, China and Vietnam.

For Tanzania the major foreign investment attraction came in mid 1980s as a result of deliberate economic liberalization policies that were initiated and implemented, and continues to be implemented. According to the Tanzanian Investment Report 2012, capital flows through FDI stood at USD 1,229.4 million in 2011. This amount is expected to increase in the near future as a result of discovery of huge deposits of gas, and possibly oil, where participation of FDI is expected to be substantial.

Furthermore, a study conducted by STIPRO in 2011 focusing on the Role of FDI in building local Technological capabilities in least Developed Countries: the Case of Tanzania found that FDI have contributed to local technological and innovation capabilities to a very small extent, largely because of limited backward and forward linkage and level of technology brought in by the foreign affiliates.

It is within this context that STIPRO in collaboration with COSTECH organised this round table discussion on the opportunity provided by the inflow of FDI to build technological capabilities of local firms with an objective to brainstorm towards a more strategic use of FDI in Tanzania, especially their role in local technological capability building.

1.2 Participants

The round table discussion involved 46 participants from different fields that included policy makers, the private sector, international organizations, and academia. In addition, the discussion was attended by STIPRO Research Fellows from Denmark, Finland, Canada, Sweden, United Kingdom, Netherlands, and Dubai (UAE) who shared their expertise and experience on FDI and technological capability building.

1.3 Structure and Methodology of the Roundtable discussion

The roundtable was structured around two productive sectors: agriculture and industry (agro-industrial); and extractive industries, particularly minerals, gas and oil. Four key questions framed the roundtable discussions for each sector. The questions are as listed below

1. How has Tanzania strategically used FDI for the development of the two sectors so far; and what policy lessons can we draw from the past experience?
2. How can we enhance the potential technological contribution of FDI in the two sectors in Tanzania?
3. What lessons can be learned from the experiences of countries that have succeeded in leveraging FDI for technological development?
4. What local absorptive capacities need to be developed and what are the likely policy options to achieve this?

2.0 Proceedings

The roundtable discussion began with opening session where welcoming remarks and introduction to the roundtable were made by **Dr. Hassan Mshinda**, Director General of COSTECH and **Dr. Bitrina Diyamett**, Executive Director of STIPRO.

Dr. Mshinda welcomed the participants and officially introduced the theme to be discussed being “FDI and local technological capability building: the case of agro-industrial innovation systems and the minerals, oil and gas sectors”. He reminded that the roundtable discussion was a continuation of a STIPRO’s workshop on “Strategic Planning” that he had officiated a day before. He then wished active participation to all participants while taking over as a facilitator of the event.

Dr. Mshinda’s introductory remarks were followed by Dr. Diyamett who invited participants to dialogue on the role of FDI commenting that FDI is important for socio-economic development. She further added that the roundtable discussion has mutual benefits for both COSTECH and STIPRO considering their focus on technological capability building. Dr. Diyamett also said, “*STIPRO is a think tank for policy research in science, technology and innovation, which has conducted research on the contribution of FDI on local technological capability building and therefore has findings in the area of agriculture, manufacturing and mining*”. According to her, building technological capabilities cannot happen automatically, strategies need to be put in place. She wished participants a fruitful discussion and urged them to take advantage of the presence of STIPRO Research Fellows with experiences from abroad on FDI’s role in building local technological capabilities in Tanzania.

2.1 Roundtable 1 Opening: Agriculture and Industry

Dr. Hassan Mshinda facilitated the session. Before welcoming the participants to the discussions, he reminded that technology is important for social and economic development; but the question in front of all of us is how do we use the technological capabilities from FDIs in building local technological capacity? Learning from abroad, we find that Western countries and Asian countries took the root of FDIs in their models to build local capabilities. Countries like Hong Kong, Malaysia adopted technologies from FDI, and he urged Africans to take the opportunity presented by FDIs for economic benefits and that was the reason for the roundtable discussion.

2.1.1 Presentations

Brief presentations on the subject matter were made by local and international experts in order to initiate discussion from other participants. Below is the summary of those presentations

2.1.2 Strategies to use FDI for development

Presenting on *how has Tanzania strategically used FDI for the development of Agriculture and Industry and what policy lessons can we draw from the past experience*, **Mr. Apronius Mbilinyi, ESRF-Tanzania**, mentioned that Tanzania has not benefited much from FDIs in terms of technology transfer and recommended that a strategic positioning needs to take place. He argued that Tanzania has undertaken legal and institutional reforms to offer incentives offering to FDIs hoping for economic development in return. The incentives included tax and non-tax incentives; establishment and strengthening of institution to facilitate FDIs, for example, one stop centres at the Tanzania Investment Centre (TIC); allowing employment up to five expatriates; unconditional transferability of net profits or dividends; formulation of EPZs. Mbilinyi observed however that FDI have risen to some point and have recently decreased in terms of volume. The trend of FDI in Tanzania was also observed from the government revenues.

Policy lessons tell that Tanzania needs to implement existing policies and be strategic to achieve the goals for FDIs attraction for sustainable development. It was explained by the presenter that employment and technology transfer are not happening automatically therefore there is need to put in place effective mechanisms to promote ST&I through FDIs. Using examples, the presenter insisted that there is a need to have sector specific where FDI tax incentives should apply instead of having a crosscutting incentive for all sectors. Mr. Mbilinyi further argued *“revenues from the high tax need to be re-invested to boost other sectors; build capacity and capabilities or empower local enterprises who can link with FDI and absorb technologies; create linkages between FDI and economic sectors”*.

Reaction from the presentation, the facilitator, **Dr. Mshinda** requested to the presenter harmonize data by making reference to reports from TIC and United Nations Conference on Trade and Development (UNCTAD) to determine the level of employment contributed by FDIs. Similarly, **Mr. Saidi Amiri**, DPP Manager at TIC recognized alerted the participants that there are other FDI projects whose establishment process does not go through TIC presenting a challenge in employment data from FDIs being produced by TIC.

2.1.3 Enhancing technological contribution of FDI

The second presentation was made by **Dr. Bitrina Diyamett** focussed on the question “*How can we enhance the potential technological contribution of FDI in agriculture and industry*”. During her presentation, reference was made from STIPRO previous studies which indicate that there is limited contribution of FDIs in building technological capabilities for local firms Tanzania. The presenter informed the participants that findings suggest only 13% per cent of FDIs contributes to manufacturing sector through backward and forward linkages (Diyamett, et al., 2011). Several causes were put forward by the presenter as the basis for the limited contribution of FDIs in technological transfer including low demonstration and poor technological capacity of firms constituting FDIs in Tanzania.

Specifically, the presenter briefed the stakeholders on STIPRO research findings on FDI and technological transformer for local firms in Agriculture sector. According to the referred study, agriculture is benefiting from FDIs given the linkages at Kilombero and Mtibwa, it could be observed that FDI has imparted knowledge to farmers. At last the presenter suggested FDIs should be directed to invest in agro-processing and the government should take the responsibility of building the capabilities of farmers locally.

Responding to the above presentation, **Mr. Gerald Runyoro**, National Programme Officer (NPO) at the United Nations Industrial Development Organization (UNIDO) contributed saying that his organization is striving building linkages between producers and consumers at both national and international markets. In the bottling field, for example, the brewing industries are to set quality they want for local suppliers of bottles to manufacture. Additionally, **Dr. Mshinda** reminded that agriculture is growing slowly thus FDI is important as local farmers who need supportive infrastructure in production process.

2.1.4 Lessons from FDI experiences

Dr. Bo Goransson working with Research Policy Institute (RPI), Lund University, Sweden urged Tanzania to learn from other experiences and provided recommendations as a way to respond to the question on *what lessons can be learned from the experiences of countries that have succeeded in leveraging FDI for technological development?*. He argued that education, technology and policy are three important aspects to observe in order to benefit from FDI.

Dr. Goransson emphasized that education helps to build technology absorptive capabilities. Taking Costa Rica as a case, he advised that Tanzania should select the type of technologies that is capable to promote. He further explained that the process should may start from adopting technologies from others and move towards more sophisticated technological capability building. Moreover, the presenter advised for the design of policies that select FDI and technologies, those policies need to be temporary opening one sector to the other. To him, at a certain point Import Substitution Policies can be problematic, and Export Substitution Policies can also be problematic meaning that there is a need to find a balance whereby policies should facilitate technology learning and afterwards enable for export economy.

Picking from the brief presentation by **Dr. Goransson**, the facilitator reminded the existing imbalance between import and export in terms of values and technologies. While a big share of capital goods is imported, the big share in Tanzania exports are being exported in raw and semi-processed forms.

2.1.5 Development of Local absorptive capacities

Dr. Geoffrey Gachino, University of Dubai, UAE shared his experience on the question “*What local absorptive capacities need to be developed and what are the likely policy options to achieve this?*” He argued that literature confirms that adoption of technologies is important for economic growth. He explained that FDI’s have to have pre-knowledge before investing in a any country but the question is now how to benefit from FDI invited in the country. This is because in most cases we finally end up finding that we failed to benefit from FDI as we forgot that FDI do invest for benefit and not to help. Dr. Gachino insisted that Tanzania needs to strategically position itself in order to benefit from FDI’s. The process should start by identifying what FDI know and have and then build with strategic sectors where FDI are in. He added that training is also important and strengthening linkages is important. Through linkages, Tanzania should improve skills and establish institutions like “*Tanzania natural linkage programme*” to calculate the role to do this. It is also profitable to encourage people’s mobility. For instance facilitate entrepreneurs who worked for FDI to start their own enterprises; and lastly, encourage demonstration effect whereby companies sharing the same production to meet and organize management forums.

2.1.6 Discussion

Participants to the roundtable discussion reacted on the above presentations making a number of points as listed below

- One of the participants pointed out that there should be a programme on “business linkages” at TIC, and should be extended to all regions of Tanzania instead of being based in Dar es Salaam alone.
- There is a need to strategize on value chain investments which effective mechanisms to boost local technological capabilities in manufacturing sector.
- Considering the low level of technological absorptive capacity, strategies should be directed to build technical skills among youth so that Tanzania can have man power to harness technology from FDI’s.
- Participants also questioned if it is adequate to attract investors by incentives to attract FDI. This resulted from the concern that with the abundance of natural resources investors who think of making profit will automatically come and invest in Tanzania.
- The use of revenues coming from FDI’s was also among the hot debated issues. Participants argued that returns from FDI’s should be invested in training man power as a way to prepare Tanzania technologically.
- Additionally, it was suggested that Tanzania needs to prepare s technological technology round map as means to strategize policies on technology transfer

2.2 Roundtable 2: Extractive industries

Dr. Hassan Mshinda led the discussions and recognised that the sector had hot discussion sessions. He then called upon presentations and discussions on the extractive industries sector namely mining, gas and oil scrutinizing the role of FDI’s in local technological capacity building.

2.2.1 Presentations

Brief presentations on the subject matter were made by local and international experts in order to initiate discussion from other participants. Below is the summary of those presentations

2.2.2 Strategic Use of FDI

Once gain the presentation from **Dr. Mbilinyi, ESRF-Tanzania** focused on *“how has Tanzania strategically used FDI for the development of Natural Resources sector; what policy lessons can we draw from the past experience?”* Mbilinyi argued Tanzania went through institutional reforms and incentives provision to attract FDI, however, technology transfer is limited to benefit local firms, specifically small scale producers. A number of factors explain the limited linkages between FDI and local firms, these include local skills deficiencies; limited capabilities of local supply to meet demand. According to him, local supplies lack relevance and reliability in both quality and quantity.

He recognized however that training and capacity building need to be negotiated as linkages do not come automatically. By so doing, the public and private sectors need to work together to help local producers harness technology from FDI and build their technological absorptive capabilities. Putting forward a quick reaction **Dr Mshinda** recalled Botswana as an example in terms of technological capability building through training/capacity building programs.

2.2.3 Enhancing technological contribution of FDI

Ms. Judith Kadege from COSTECH presented on *“how can we enhance the potential technological contribution of FDI in Natural resources sector”* urged policy issues and laws to be put in place for technology transfer in favor of developing countries such as Tanzania. She observed that policies and laws take times while technology changes rapidly a fact that suggests technology transfer authorities to bring in the agreement the component of human resources training enabling to cope with a particularly technology. A successful technology transfer needs harmonization of the all the institutions working on investment such as COSTECH and TIC, said the presenter. She stressed that working collaboratively among government institution is paramount in harmonizing strategies for technological transfer.

Arguing following a concern over which technology to focus on, **Dr. Mshinda** illustrated with examples from the gas sector where different companies are operating with different technologies from their own universities of research and technology development, he said the question is “are we prepared to those different technologies?”. Added to that, Dr. Mshinda stressed the need to look along the whole value chain and see opportunities that exist considering the competition with technological advanced countries. In another context he emphasized to promote cases like Kilombero Sugar Company, Serengeti and Tanzania breweries taking into account the way technology transfer is being done by firms to famers leading to poverty alleviation.

2.3.4 Lessons from FDI Experience

The third presentation came from **Dr. Amitav Rath** from Policy Research International (PRI), Canada to focus on “*What lessons can be learned from the experiences of countries that have succeeded in leveraging FDI for technological development?*”. He reflected on some key point saying Tanzania has to look at the company policies and increase in capacity of geologists, oil and gas engineering. Tanzania has to learn from other countries particularly Chile, and see how technological capabilities are happening.

He urged however to keep in mind that FDI is not a solution to everything, and think of demand side to trigger technology transfer from FDI happens based on the rising demand. He recommended a shift from think that the government can do everything. Out of the available resources, it is important to see what kind skills required and the capacity gaps thereof so as to improve technological absorptive capacity.

2.3.5 Local absorptive capacities

The question on “*What local absorptive capacities need to be developed and what are the likely policy options to achieve this?*” got led by two presentations, one from **Dr. Rasmus Lema** from Aalborg University, Denmark and **Michiko Iizuka** from UNU-MERIT, the Netherland.

Dr. Rasmus Lema presenting a paper on “Harnessing FDI for Economic Prosperity: The Case of Wind Power in China” focused on two major points, the success factors leveraging FDI for local industrial development and lessons for low income countries. Dr. Lema pointed out that market access; multilateral support mechanisms, high transportation cost, and follow sourcing are among the factors that attracted FDI in China. In similar regards, he mentioned several factors that played a key role in exerting leverage for local industrial development. These factors include local content requirement (2005-2009), Government control over tenders such as public procurement policy, designated as strategic priority industry, using skillsets and capabilities from related industries (crowding in), selected partnerships across the value chain (choosing functions), demonstration effects (imitation and labour mobility) and selected joint ventures.

He pointed out a number of lessons that low income countries can learn from the China experience: Tanzania should not rely on FDI alone rather find other ways of building local technological capabilities. He emphasized that the government has the role of carefully sequencing and fine-tuning of strategy and policies such as in attracting and keeping FDI, leveraging FDI and crafting public procurement playing field and local content requirements as well as public procurement policy; and Tanzania needs also to carefully select functions in the value chain. Rasmus then posed a number of questions to make participants reflect on rural electrification with renewable energy. The questions included where the technology and services will come from? What are the prospects for local linkages development? Which business models create multidimensional outcomes and interactive learning?

Dr. Michiko Iizuka emphasized in her presentation that FDI requires existing capacities. For instance, the technology that promoted the Salmon fish industry in Chile was basically from Japan whereby Chile then succeeded to export fish. Another example is from the Flower

export from Ethiopia developed in 1980s whereby the industry became successful from building on trial and error strategy and knowledge requirement.

According to her, the policy aspect should guide to assess local capacities. The government has the role to ensure the environment is conducive for the market force to operate. This role should encourage knowledge transfer and innovation that takes a move of starting slowly and gradually moving up and keep encouraging adaptation of new technologies. In addition, it is important to establish and strengthen institutional innovation that ensures funding of innovations. For example revenue from resources should allocate fund for innovation. Commenting on Dr. Michiko's presentation, **Dr. Mshinda** pointed out that since the flower industry from Ethiopia is competing with other countries such as Tanzania, there is a need to build internal (within the country) capabilities to build competitiveness of the industry.

2.3.6 General Discussions

The presentations were followed with general discussion by all participants. During the general discussion, the following points were made

- There exist some institutions regarding building technology and innovation capabilities even in gas resources for example the Vocational Education Training Authorities (VETA), but they need strengthening
- The government recognizes the importance of knowledge and technological capability building that why it has adopted a policy of allowing a number of 5 expatriates to work in the country for each firm
- It was said that there is a need to have specific knowledge and technology transfer for each sector specifically
- It was further recommended that there is a need of establishing and strengthening institutions to monitor technology and innovativeness
- A serious environmental impact assessment should be undertaken by NEMC prior to every FDI project execution
- There is a need for Tanzania to position itself to the extent that strategy to attract FDI can be geared towards competence building in technology and innovation at local level
- Local content requirement policy should be revised. For example, Brazil increased local technology content but the cost was high in 1980s in electronics industry. This means, there is a need to look at what can be produced locally instead of putting high demands from local producers
- There is a need of diversifying the benefit from FDIs. There should be good approaches to technological capacity building rather than sticking on the revenues. Ukraine and Russia are good example in this context
- Similarly, we need to go beyond thinking of selling gas and oil. The Gas should not be looked at as a good only but an opportunity for local capacity building
- In gas and oil, skills should be a priority: this can start being taught from primary and secondary schools. An encouragement to bring people to discover, invent and innovate, even though few successful cases that exist in the country
- Advised, it is important to build local demand than concentrating on export

3.0 Concluding Remarks

As the roundtable discussions came to an end, the facilitator gave the closing remarks and indicated his satisfaction over the presentations and discussions. He particularly thanked STIPRO to come with the idea of the roundtable and stressed on the need to optimize FDI in the country as it is good to learn that FDI in terms of revenue collection is different from FDI as a strategy in building technological capabilities. He then urged to facilitate capacity building through local content and look which areas to invest in terms of absorptive capacity in a way to give benefit to local scientists and firms. To him, finance needs to be structured in a way that builds local capacity and promote innovation like the case of Bolivia. He finally thanked participants and wished safe journey to STIPRO Research Fellows, international scholars whose contributions had been appreciated during the sessions. He added that organizing such an event was rewarding to STIPRO and COSTECH in view of what was discussed, which indeed reflect a high level of commitment from all participants.

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Appendix 1: Time Table

Time	Activity	Responsible
8:30 – 9:00 am	Arrival and Registration	All
9.00 – 9:10 am	Welcoming note and Introduction to the round table	Dr. Hassan Mshinda, DG, COSTECH and Dr. Bitrina Diyamett, ED, STIPRO
9:10 - 9:20 am	<i>Round Table 1 Opening: Agriculture and Industry</i>	DR. Hassan Mshinda
	Lead Questions	
9:20 - 9:25 am	i. How has Tanzania strategically used FDI for the development of the sector so far; what policy lessons can we draw from the past experience?	Mr. Apronius Mbilinyi, ESRF, Tanzania
9:25 - 9:30 am	ii. How can we enhance the potential technological contribution of FDI in this sector in Tanzania?	Dr. Bitrina Diyamett, STIPRO, Tanzania
9:30 - 9:35 am	iii. What lessons can be learned from the experiences of countries that have succeeded in leveraging FDI for technological development?	Dr. Bo Goeransson, Research Policy Institute (RPI), Lund University, Sweden.
9:35 - 9:40 am	iv. What local absorptive capacities need to be developed and what are the likely policy options to achieve this?	Dr. Geoffrey Gachino, University of Dubai, UAE and Kenya
9:40 - 10:10 am	General Discussion	All
10:10 – 10:30 am	Conclusions from each 4 discussant	Discussants
10:30 -10:40 am	Facilitator closing Round table 1 discussion	Dr Hassan Mshinda, COSTECH
10:40 – 11:05 am	Tea Break	COSTECH
11:05 - 11:15am	<i>Round Table 2 Opening: Natural Resources</i>	Dr. Hassan Mshinda, COSTECH
	Lead questions	
11:15 – 11:20 am	i. How has Tanzania strategically used FDI for the development of this sector so far; what policy lessons can we draw from the past experience?	Mr. Apronius Mbilinyi, ESRF
10:20 – 11:25 am	ii. How can we enhance the potential technological contribution of FDI in this sector in Tanzania?	Ms Judith Kadege/Mr. Festo Maro, COSTECH
11:25 – 11:30 am	iii. What lessons can be learned from the experiences of countries that have succeeded in leveraging FDI for technological development?	Dr. Amitav Rath, Policy Research International (PRI), Canada

11:30 – 11:35 am	iv. What local absorptive capacities need to be developed and what are the likely policy options to achieve this?	Dr. Rasmus Lema, Aalborg University, Denmark/ Michiko Iizuka, UNU-MERIT, The Netherlands
11:35 – 12:05 am	General Discussion	All
12:05 – 12:25 pm	Conclusions from each 4 discussant	Discussants
12:25 – 12:35 pm	Facilitator closing Round Table 2 discussion	Dr Hassan Mshinda, COSTECH
12:35 - 12:40 pm	Closing remarks	Dr. Hassan Mshinda, DG COSTECH

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