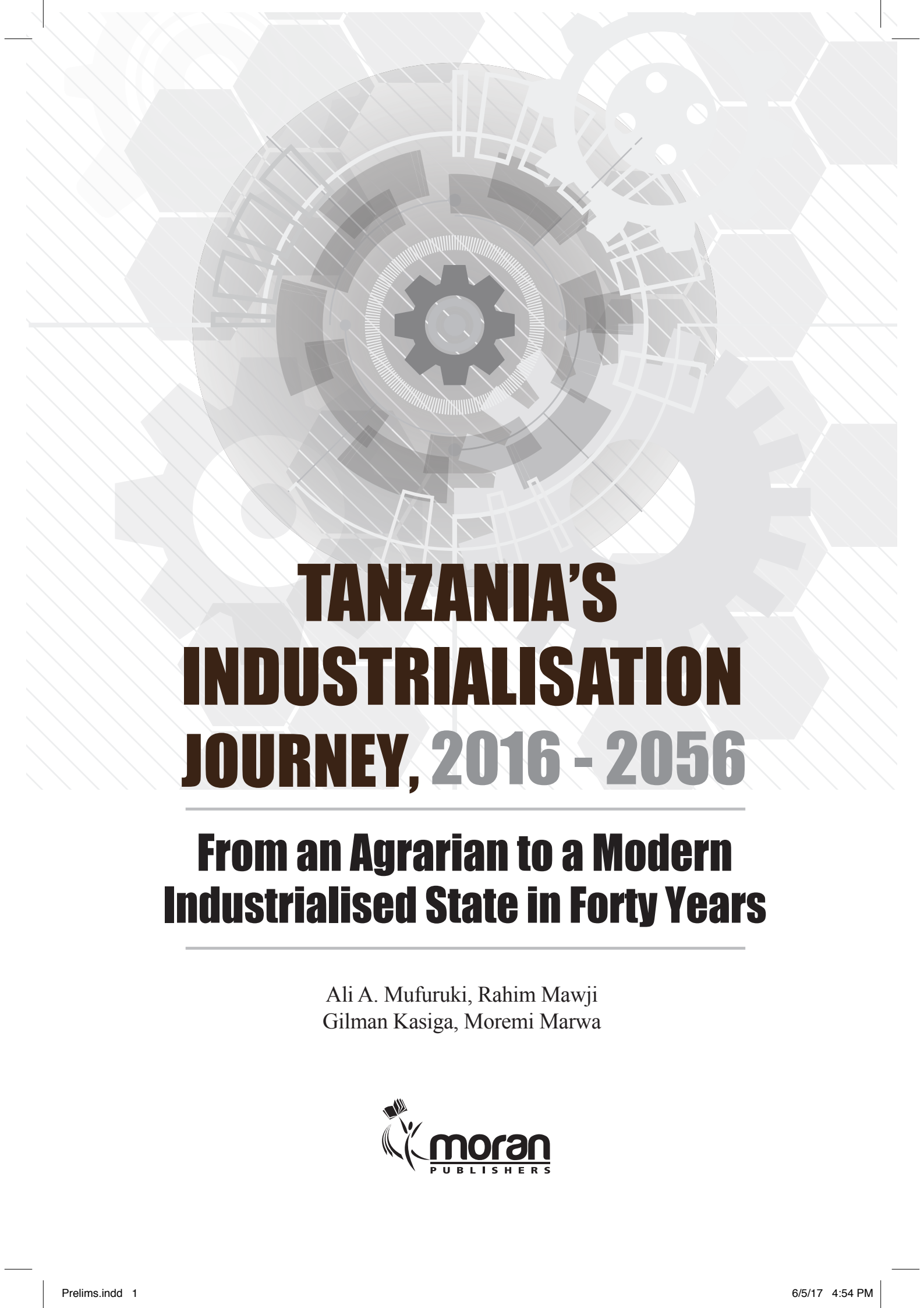




TANZANIA'S INDUSTRIALISATION JOURNEY, 2016 - 2056

**From an Agrarian to a Modern
Industrialised State in Forty Years**

Ali A. Mufuruki, Rahim Mawji
Gilman Kasiga, Moremi Marwa



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“There is no way in which we can begin to deal with the problems of Africa without leadership and without commitment. If you go to Asia, one thing which strikes you is the commitment of the state to development ... You see it in Japan, that commitment of the Government of Japan to development. Even now, they are a developed country, but there is a tremendous commitment by the state. Don’t listen to this nonsense that the state should give up the direction of the economy. It’s nonsensical ... Nani wameacha? Who has done it? The Japanese have not done it; the British have not done it; the Germans have not done it.”

Mwalimu Julius K. Nyerere in a 1995 speech

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Foreword

Experience from recent economic transformation success stories such as China, Malaysia, Vietnam and Brazil teaches us that transformative economic change happens when the political ruling elite makes a decision to seriously commit to the development of the state and follows up this commitment with well thought-out long-term development plans and strategies, backed by adequate resources and unwavering political leadership.

During the election campaign and after being sworn in as the fifth President of the United Republic of Tanzania in early November 2015, I emphasised the urgent need for Tanzania to industrialise in order to create jobs for millions of young Tanzanians and to build a modern economy for the country and its people. Six months later, I followed this up by launching a second Five-Year Development Plan (FYDP II) themed *“Nurturing Industrialisation for Economic Transformation and Human Development”*. The launch of this plan followed by the announcement of the Government budget by my Finance Minister for the first year of the plan (2016/17) was an affirmation of my personal commitment to the development of the Tanzanian state and to industrialisation as the chosen strategy for the attainment of our desired development aspirations. Industrialisation is, therefore, an essential and central component of a wider nation-building project of the modern Tanzanian state to which I have dedicated my presidency. My Government’s objective is to propel the country and its people to higher standards of living (High Middle Income Status by 2036 and to catch up with the developed world by 2066).

Achieving this ambitious goal will require, among other things, a rigorous questioning of the status quo (why are we under-developed, who are we, what is our proper place in the global community, what can we realistically achieve if we put our best foot forward?) It will also require us as a people and as a nation to re-discover our capability to build industries and make things happen. We will have to revamp our educational institutions, build an innovation culture and entrench entrepreneurship in our society.

Most importantly, we must seize control of our economy and destiny. This will require courageous leadership, self-confidence, ingenuity, hard work and economic patriotism. Having been a Member of Parliament for two decades before I became President of the United Republic of Tanzania, I know more than most that nation building is hard work. I also know that Tanzanians can rise to the challenge as long as they have good leadership. I feel honoured and privileged to be our nation’s leader at this critical time in our history.

This book, a freelance collaborative effort by four Tanzanian patriots, charts one of the paths that we can take as a nation towards the realisation of our aspirational goal of attaining the status of a modern industrialised state in less than fifty years. The authors have identified key elements of a credible industrialisation strategy, putting them into the Tanzanian and global context, and painting a realistic picture of what success could look like if the industrialisation project is executed in a decisive and disciplined manner.

The book will make a vital contribution to the national debate on how we, as a people, can work together, public and private sectors, economic planners, civil servants, educators, researchers, farmers, workers, entrepreneurs, politicians and ordinary citizens, to make Tanzania's industrialisation journey a success that can be attained in our lifetime.

I call upon all Tanzanians and all those who support our ambition of becoming a modern industrialised nation to read this book, to take part in this debate, and to contribute their own ideas.

Having said that, I prefer that we talk less and focus more on doing the work before us. As the Fifth Phase Government slogan goes – *HAPA KAZI TU!*

Mungu ibariki Afrika, Mungu ibariki Tanzania.



Dr John Joseph Pombe Magufuli
President of the United Republic of Tanzania
Dodoma, March 2017

Preface

During the month of October 2014, I received an email from a Tanzanian student at Harvard University who wanted to interview me as part of his research on leadership development in Africa. He had read my lecture, at Strathmore Business School, titled “What Africa needs is transformational leadership” and thought that it resonated with the objectives of his research. After several email exchanges, we agreed to meet later that year as he would be coming home for Christmas.

Arranging a physical meeting was complicated because I would be taking a much-needed break at my home village in Bukoba, Northern Tanzania, and getting there especially during Christmas season is always a logistical nightmare. In the end, we managed to meet in person for the first time on 24th December 2014 at a food joint outside Bukoba Airport.

Throughout our conversation that lasted just under one hour, I was struck by the intensity and intelligence of my young visitor. He asked very tough questions. He wanted to know what I meant by transformational leadership, why Africa is struggling despite its enormous wealth in natural endowments, good weather and fertile soils. He wanted to know why corruption was rampant and more importantly, why I thought Africa cannot find its own way out of poverty without relying on the leadership and generosity of others. I did my best to respond but it was clear that by the time he had to board the flight back to Mwanza, we were far from completing the interview. We agreed to continue our conversation online and that is how my friendship with Rahim Mawji began. Rahim was 21 years old at the time with only a few months remaining before graduating with a bachelor’s degree in Applied Mathematics at Harvard University.

In the months that followed our meeting in Bukoba, Rahim and I exchanged many emails, articles, book titles and YouTube videos about leadership, Africa and economic development scenarios from different parts of the world. 2015 was an election year in Tanzania and the subject of leadership was on everybody’s mind. Rahim and I continued to discuss about leadership and its implications for Africa’s growth. We hoped the October 2015 election would be about infusing the much needed transformational leadership into our politics rather than merely changing the presidency and leadership in general.

Towards the end of 2015, two good friends of mine joined our conversation. Gilman Kasiga, an engineer turned business executive and Moremi Marwa, the youngest Tanzanian to be appointed CEO of the Dar es Salaam Stock Exchange, added a more practical dimension to the theoretical

debate that Rahim and I had engaged in for a year. Before long, we knew we needed to move from asking questions to providing answers and that is how the idea of this book was born.

It is important to point out to the reader that all the four of us are first time authors with no prior experience in publishing books. We briefly entertained the idea of publishing our thoughts in the form of an online article but quickly abandoned it in favour of something that will be more solid, and accessible to a wider audience in the public and private sectors as well as in academia and civil society in Tanzania and Africa. This is because we believe that the popular theme of “Industrialisation in Africa” should be widely debated so that we may be able to benefit from all the good insights that will come out of this debate. This book, therefore, is the beginning, not the end of a conversation on how we can successfully transform livelihoods in Africa through industrialisation, with Tanzania as an example.

The reader will notice that ideas presented in this book are not new or original but rather lessons we have studied and believe are relevant to the development story of Tanzania and Africa. We are conscious of the fact that the book may contain unintended errors, factual inaccuracies and other quality shortcomings. We have tried our best to keep these at an absolute minimum through rigorous research. Let me apologise in advance for any errors that may have escaped our careful search. As I said earlier, the debate will continue but hopefully, the work of industrialising Africa will also continue apace as we deepen our knowledge of the subject through mutual learning.

We plan to monitor Tanzania and Africa’s progress on the industrialisation journey and in a few years, we will write the next book on this very important subject. Meanwhile, I invite you to read the book and share your thoughts and reactions.

My colleagues and I owe you a huge debt of gratitude for taking an interest in our work.

Thank you.

Ali A. Mufuruki

Dar es Salaam

May, 2017

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The authors also wish to acknowledge millions of Tanzanian men and women entrepreneurs who provided the inspiration that made writing this book both possible and necessary.

Finally, the authors feel greatly humbled and honoured to have His Excellency President Dr John J. P. Magufuli as author of the foreword of this important book. May God bless him and his time as leader of this great nation.

About the Authors



Ali A. Mufuruki (*Convener and Team Leader of this project*) is a Tanzanian businessman, philanthropist, public speaker and leadership coach. He is Founder, Chairman and CEO of Infotech Investment Group based in Dar es Salaam. He serves on numerous corporate, public and non-profit boards. He is also Co-Founder and Chairman of the CEO Roundtable of Tanzania. He is a mechanical design engineer by training with a bachelor's degree from Reutlingen University in Germany, 1986.



Moremi Marwa is currently the CEO of the Dar es Salaam Stock Exchange PLC (DSE). He has over ten years of broad experience in financial markets and senior management in multiple institutions. Moremi serves as a board member in various companies. He also chairs the Sub-Committee responsible for markets integration and development for the Committee of SADC Stock Exchanges. Moremi is a CPA and holds an MBA in Finance from the University of Dar es Salaam.



Gilman Kasiga is currently with General Electric (GE) as Business Development Director (Eastern Africa). Gilman is a Co-founder of EA-Power Limited, an energy development company. He serves as board member of various institutions. Gilman is a graduate of the University of Dar es Salaam, BSc. Chemical & Process Engineering, as well as a graduate of Strathmore Business School/ University of Navarra Advanced Management Programme.



Rahim Mawji is pursuing a Masters in Economics and Global Affairs as a Schwarzman Scholar at Tsinghua University in China. He studies China's growth, and is trying to figure out how stronger bridges can be built between China and East Africa in manufacturing, education and infrastructure. He previously worked in energy development, financial services and education, and holds a BA in Applied Mathematics from Harvard University in USA.

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List of Acronyms and Abbreviations

AfDB	–	African Development Bank
AGOA	–	African Growth and Opportunity Act
ALA	–	African Leadership Academy
ALU	–	African Leadership University
ANC	–	African National Congress
ATE	–	Association of Tanzania Employers
CPA	–	Certified Public Accountant
CTI	–	Confederation of Tanzania Industries
DSE	–	Dar es Salaam Stock Exchange
E&E	–	Electrical and Electronics
EAC	–	East African Community
EPZ	–	Export Processing Zone
EU	–	European Union
F4PE	–	Fit for Purpose Education
FAO	–	Food and Agriculture Organisation
FDI	–	Foreign Direct Investment
FGP	–	Flying Geese Paradigm
FYDP I	–	First Five-Year Development Plan
FYDP II	–	Second Five-Year Development Plan
GDP	–	Gross Domestic Product
GOT	–	Government of Tanzania
HESLB	–	Higher Education Students Loans Board
IEA	–	International Energy Agency
IMF	–	International Monetary Fund
IP	–	Intellectual Property
IPO	–	Initial Public Offer

IPPs	– Independent Power Producers
IPs	– Industrial Parks
ITT	– International Telephone and Telegraph
JKT	– Jeshi la Kujenga Taifa (National Service)
LNG	– Liquefied Natural Gas
MIDA	– Malaysian Investment Development Authority
MNCs	– Multinational Corporations
NDC	– National Development Corporation
NHC	– National Housing Corporation
ODA	– Overseas Development Assistance
ODI	– Overseas Development Institute
OECD	– Organisation for Economic Co-operation and Development
OFC	– Optic Fiber Cable
PDA _s	– Personal Digital Assistants
PEDP	– Primary Education Development Programme
PISA	– Programme for International Student Assessment
R&D	– Research and Development
SADC	– Southern African Development Community
SDL	– Skills Development Levy
SEZ	– Special Economic Zones
SIDO	– State International Development Organisations
SME	– Small and Medium Enterprises
SOEs	– State-Owned Enterprises
SSA	– Sub-Saharan Africa
STEM	– Science Technology Engineering and Mathematics
TADB	– Tanzania Agricultural Development Bank
TCU	– Tanzania Commission for Universities
TIC	– Tanzania Investment Centre

TIN	–	Tax Identification Number
TNC	–	Transnational Corporations
TPSF	–	Tanzania Private Sector Foundation
TRA	–	Tanzania Revenue Authority
UAE	–	United Arab Emirates
UNIDO	–	United Nations Industrial Development Organisation
VETA	–	Vocational Education and Training Authority
VSAT	–	Very Small Aperture Terminal
WTO	–	World Trade Organisation

Figure 1: Map of the United Republic of Tanzania in the East African Context



Figure 2: Map of Tanzania's Strategic Location in the Indian Ocean Trading System



Chapter 1

Introduction

1.1 Africa's Growth Illusion

Despite all the fanfare, the reality is that Africa's growth over the past decade has not been impressive. Between 2000 and 2014, during Africa's supposed "rise", the GDP per capita in African developing countries grew at an annual average of 2.1 per cent. In East Asia and Pacific developing countries, it grew at 7.7 per cent.¹ (GDP per capita growth is a better metric for comparison than GDP growth because the former captures the change in the population size/social status of the people.) Although Africa is home to 15 per cent of the world's population and 20 per cent of the earth's landmass, its share of global output has remained stagnant at 3 per cent over the past forty years, and its share of global exports has fallen from 5 per cent in 1970 to 3.3 per cent in 2010.

Speaking at the TEDxEuston in London in December 2014, a Tanzanian entrepreneur and co-author of this document had the following to say about Africa's supposed rise:

- You cannot be rising when you do not have electricity to power your industries
- You cannot rise without technology or industries, not in this century, not ever
- You cannot rise with poor or no transport infrastructure
- You cannot rise when the majority of your people are sleeping on empty stomachs; raising malnourished children whose survival in this world is made uncertain by stunted development of their brains and bodies
- You cannot be rising if your share of global trade is insignificant and steadily declining
- You cannot rise if you are busy wrecking your own economy through corruption, theft and other forms of sabotage

¹ Ha-Joon Chang, *Transformative Industrial Policy for Africa*, (Economic Commission for Africa, 2016)

- And you definitely cannot be rising if the environment and biodiversity that sustains life is dying in your hands

In addition, Africa's recent growth has generally been of poor quality, generating mostly low-quality vulnerable jobs and lifting few out of poverty. An estimated 72 per cent of sub-Saharan Africa's population was living on less than US\$ 2 a day (PPP) in 1981, and thirty years later, in 2011, that number had hardly changed, standing at 70 per cent (and it had increased in the 1990s and early 2000s). Meanwhile, in East Asia and Pacific, the number dropped from a whopping 92 per cent in 1981 to 23 per cent in 2011. In short, as it stands, Africa is not rising.

Figure 3: GDP growth and GDP per capita growth rates: Africa vs East Asia and Pacific (%)²



In reality, Africa's supposed "rise" has just been on the back of China's hyper-growth and its tremendous appetite for Africa's commodities and the high prices of these commodities. Indeed, fuels, metals and ores currently account for 60 per cent of Africa's exports to China (and agricultural commodities account for another large chunk), and disturbingly, African countries have done little to use this commodity boom to transition into a sustainable growth trajectory by beginning to process these commodities, and move into manufacturing as well.

Large-scale industrialisation, which has been the backbone of growth for every developed and major emerging economy in the world, has taken a

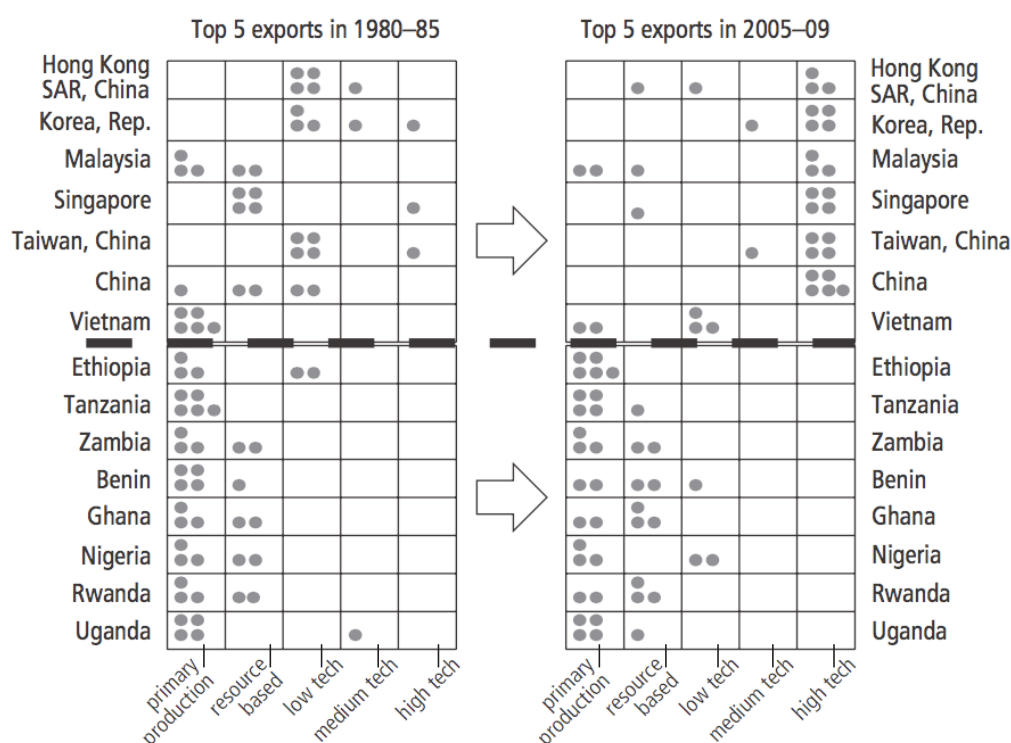
² Ha-Joon Chang, *Transformative Industrial Policy for Africa*, (Addis Ababa: Economic Commission for Africa, 2016). The numbers in the chart are slightly different from those presented above because the chart takes into account all Africa and EAP countries, and not just the developing ones within the regions.

backseat in Africa. As Dani Rodrik, Professor of International Political Economy at Harvard University, points out, Africa has, in fact, deindustrialised, as the share of manufacturing in most African economies has declined from around 15 per cent in the 1970s to around 10 per cent today, and Africa's share of global manufacturing has fallen from 3 per cent to 1.5 per cent over the same period.^{3,4}

Table 1: *Industrialisation by region, 1960s–2000s (manufacturing as a % of GDP)⁵*

Decade	East Asia and the Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa
1960s	24.8	—	25.6	—	14.2	9.4
1970s	31.5	—	26.5	—	15.7	10.1
1980s	31.5	—	26.5	12.3	16.1	10.7
1990s	30.4	21.3	19.6	14.2	16.1	10.8
2000s	31.1	18.5	18.0	12.1	15.7	8.5

Figure 4: *Top five exports: Sub-Saharan Africa vs Asia, 1980 and 2009⁶*



³ Grieve Chelwa, "Is Africa Really Rising? History and Facts Suggest it Isn't," Africa as a country (June 2015)

⁴ Dani Rodrik, "Premature Deindustrialisation", Harvard University, 2015

⁵ Light Manufacturing in Africa, World Bank, 2012

⁶ Ibid

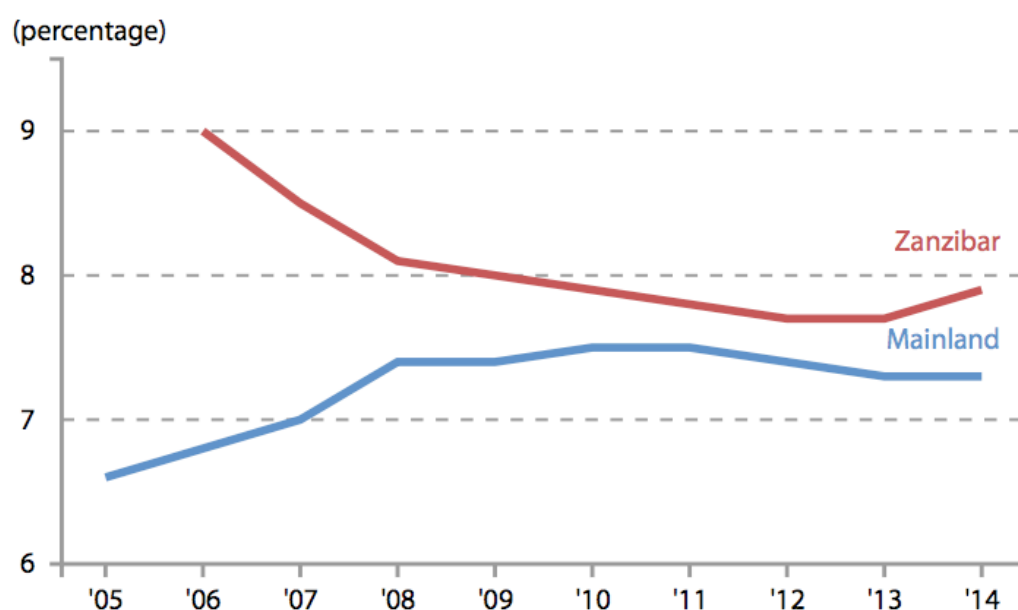
As seen from Table 1 and Figure 4 on Page 3, most sub-Saharan African countries have, after several decades, continued to export mostly primary commodities while Asia has forged ahead into the high tech production world. As China's growth slows down and commodity prices begin to fall, things are not looking promising for Africa.

1.2 State of Tanzanian Industry

The general situation in Africa is reflected in Tanzania on a microcosmic scale. The Tanzanian GDP per capita has grown at an average 3.4 per cent over the past ten years, higher than the average GDP per capita growth rate of developing countries in Africa over the same period, but still far lower than the developing countries in East Asia and the Pacific.

Mining and agriculture continue to dominate the economy and exports, with metals, ores and precious stones accounting for 37 per cent of Tanzania's export revenue (US\$ 2.15 billion of total US\$ 5.8 billion) in 2014, also benefitting from the global commodities boom. Meanwhile, the share of manufacturing of GDP has remained at 7.3 per cent, lower than the average 10 per cent of African countries, with an annual growth rate of 5.8 per cent, and with food and beverages accounting for more than 40 per cent of the manufacturing output. The manufacturing sector employs 133,000 Tanzanians or about 0.5 per cent of the national labour force (26 million people).

Figure 5: Manufacturing in Tanzania as a share of GDP⁷



⁷ Tanzania Country Profile, Economic Commission for Africa, 2016

The ambitious second National Five Year Development Plan (FYDP II: 2016/17-2020/21) recently released by Dr Philip Mpango, Minister of Finance and Planning, which aims to spur industrialisation for economic development, is a step in the right direction. This will stimulate Tanzania to rise. However, as Dr Mpango points out, though there was positive growth in some sectors, the first plan, FYDP I, failed to hit targets in many areas. Therefore, here the country delves into an industrial policy plan, as a complement to the FYDP II, and details what needs to be done to make industrialisation work in Tanzania. Subsequent sections look at why and how, drawing lessons from successes and failures of industrial policies implemented in other nations over the past centuries.

1.3 Strong Leadership and a Commitment to Development

Africa is far behind; starting out on an unequal playing field compared to the more developed countries, and is currently not moving very quickly. The structural adjustment policies imposed by the International Monetary Fund (IMF) and the World Bank in the 1980s and 1990s crippled Tanzania's economies and societies. While history cannot be changed, it is imperative to ensure that it is studied closely, so as to learn from the successes and failures, and forge ahead.

Without a strong, nurturing state, it is going nowhere. If industrial policy is to be successful in Tanzania, there is need for a government with 'embedded autonomy' – a government that has roots in society (embeddedness) and the power to impose its own will (autonomy), especially when there is an opposition that opposes for the sake of it. Currently for Tanzania, President John P. Magufuli's government is responsive. In most other African countries, this is not the case.

Mwalimu Julius Nyerere, talking about state commitment to development and direction of the economy, said:

There is no way in which we can begin to deal with the problems of Africa without leadership and without commitment. If you go to Asia, one thing which strikes you is the commitment of the state to development... You see it in Japan, that commitment of the Government of Japan to development. Even now, they are a developed country but there is a tremendous commitment by the state. Don't listen to this nonsense that the state should give up the direction of the economy. It's nonsensical... *Nani wameacha?* Who has done it? The Japanese have not done it; the British have not done it; the Germans have not done it.⁸

⁸ Julius Nyerere, Speech, 1995

Chapter 2

Industrial Policy and the Essential Role of Government

2.1 A Short Background of Industrial Policy

Why is there need for government intervention and an industrial policy? The most basic argument is that of market failures. A market failure is a situation whereby when things are left to market forces, the results are not exactly desirable. The best example of this is pollution. If all firms worked out of self-interest, there would be no attention paid to the environment: why would a firm care if it were heavily polluting the river nearby or the air? This is why governments have to step in and intervene in their economies to ensure that pollution is controlled and climate change is slowed.

Government intervention happens all the time. Even in the US – which preaches limited government intervention and free markets to the world – a recent example is when the government heavily intervened to bail out several major banks during the financial crisis of 2007-2008, as usual, justifying government intervention under a neat “too big to fail” economic theory. Another recent example is the US – which advocates for minimum tariffs across the world – imposing sky-high tariffs of 522 per cent on Chinese steel imports.⁹

The beginning of industrialisation for developing countries is a state of market failure, argued Alexander Hamilton (1st US Secretary of Treasury / Minister of Finance) and Friedrich List, when championing industrial policy for the US in the 18th century, and Germany in the 19th century, respectively. James Fallows describes the views of Hamilton and List well:

Societies did not automatically move from farming to small crafts to major industries just because millions of small merchants were making decisions for themselves.

If every person put his money where the return was greatest, the money might not automatically go where it would do the nation

⁹ "US Slaps China Steel Imports with Fivefold Tax Increase", BBC, 2016

the most good. For it to do so required a plan, a push, an exercise of central power. List drew heavily on the history of his times – in which the British government deliberately encouraged British manufacturing and the fledgling American government deliberately discouraged foreign competitors.¹⁰

Economic history shows us that essentially every single country in the world that has grown powerful over the recent decades and centuries has done so, not through free trade, but through strategic protectionism and an active industrial policy. East Asian miracle economies like South Korea and China, as well as the mostly developed Western countries, including Britain and the United States, which preach free trade to the world, aggressively used industrial policy and strategic protectionism in earlier stages of their development. This has been clearly demonstrated by Ha-Joon Chang (Professor of Economics at University of Cambridge)¹¹, Erik Reinert (Professor of Technology Governance and Development Strategies at Tallinn University of Technology),¹² Peter Evans (Professor of Sociology and International Studies at University of California, Berkeley), and many others.¹³

From 1700 -1850, during the rise of Britain, the British violated all rules of free trade. Cheap competition from the colonies was forbidden. The Crown subsidised and encouraged investment in factories and implemented several other measures that allowed the British manufacturers to concentrate more capital than they could otherwise have obtained. They built out the might of the British navy, which drove out the French and Spanish, and made it easier for British ships to dominate trade routes. They passed the Navigation Acts, which ensured a British monopoly in a number of the industries the country wanted most to develop, and prevented, for example, the Portuguese and Irish from developing textile industries that could compete with those of the British.

United States did the same. American preaching of free trade only began after World War II. The late Thomas McCraw, business historian and professor at Harvard Business School, said that while America did not practise a mercantilist policy as the Europeans did, “it did exhibit, for 150 years after the Revolution, a pronounced tendency toward protectionism, mostly through the device of the tariff.” As Professor Ha-Joon Chang points out, throughout its meteoric 19th century rise, America was the world’s most protectionist nation. In fact, it is Alexander Hamilton, the first US Secretary

¹⁰ James Fallows, "How the World Works", The Atlantic, 1993

¹¹ Ha-Joon Chang, *Bad Samaritans: The Myth of Free Trade and the Secret History of Capitalism*, 2008

¹² Erik Reinert, *How Rich Countries Got Rich and Why Poor Countries Stay Poor*, 2008

¹³ Peter Evans, "Embedded Autonomy: States and Industrial Transformation", 1995

of Treasury (Minister of Finance), who coined the term “infant industry” when advocating protectionism, high tariffs, subsidies and government intervention.

Most American politicians between 1776 and 1940 were protectionist. Abraham Lincoln is known to have said, “I don’t know much about the tariff. But I know this much. When we buy manufactured goods abroad we get the goods and the foreigner gets the money. When we buy the manufactured goods at home, we get both the goods and the money.” A heavy tariff on imported British rails made the expansion of the American railroads in the 1880s much costlier, but this protectionism also allowed for the American steel industry to participate in production, and thereafter go on to become much more productive and efficient.

At the same time, economics lecturers at the University of Pennsylvania were not allowed to teach the theory of free trade. Writes James Fallows:

While American industry was developing, the country had no time for *laissez-faire*. After it had grown strong, the United States began preaching *laissez-faire* to the rest of the world—and began to kid itself about its own history, believing its slogans about *laissez-faire* as the secret of its success.

Friedrich List, the 19th century German economist, called this hypocritical behaviour “kicking away the ladder” when he said:

It is a very common clever device that when anyone has attained the summit of greatness, he *kicks away the ladder* by which he has climbed up, in order to deprive others of the means of climbing up after him... Any nation which by means of protective duties and restrictions on navigation has raised her manufacturing power and her navigation to such a degree of development that no other nation can sustain free competition with her, can do nothing wiser than to *throw away these ladders* of her greatness, to preach to other nations the benefits of free trade.

The major industrial successes of the past few centuries – Britain in 1700 -1850, America in 1776-1940, Germany in 1871-1890, Japan in the Meiji era (1868 -1912) and again after World War II, South Korea 1961-1997, China from 1978 onward, France, Singapore, Malaysia, Norway – all violated rules of free trade and pursued strategic protectionism when they were building their industrial and technological capabilities. Protectionism and government intervention continues to this day in the lands that are supposedly beacons of free trade. As Professor Ha-Joon Chang points out, “Most of the industries in which the US still has international technological leadership are industries that were set up and nurtured by the government through public funding of

R&D (Research and Development) and procurement (often at inflated prices) – aircraft, computer, semiconductor, internet and genetic engineering, just to name the most important ones.”

2.2 State-led Industrial Growth and Mwalimu Nyerere’s Boxing Analogy

The Government of Tanzania is uniquely placed to jumpstart the country's economy, drive industrialisation and grow strategic industries through smart policy interventions and investments. Foreign producers in Africa and beyond have had a head start in this race: they have had many decades, sometimes centuries, to produce at large scales and achieve economies of scale, to build up their organisational and technological capabilities, to establish large markets and market channels, to attract and develop talent, etc. It may be difficult in the beginning for the domestic producer to compete with a mature foreign producer, and to get off the ground, as foreign products in many industries may be superior or cheaper. Domestic producers, therefore, require a period of active government support and partial insulation as they build up their productive capabilities and reach economies of scale.

Using a boxing analogy, Mwalimu Nyerere succinctly describes unfair foreign competition, strategic protectionism and the nurturing of domestic industries:

It [the private sector] needs nursing, before you can have it. So you nurse it. This is what the Asian countries have done, and they go on nursing it. So the Japanese did it. Korea – tough, tough. It’s only that they are beginning to open up their market. How do you open up your market to big competitors when you have no power to compete with big competitors? This is ridiculous. It’s like – in the world of boxing there are heavyweights; middleweights; flyweights; featherweights. And although the rules are the same you put them separately, in separate rings. The heavyweights in their own ring; the middleweights in their own ring. You don’t put in the same ring a heavyweight and a featherweight. Never. Never. How do you do that? That is murder. But that’s what the Big 7 are telling us to do. That Germany and Burkina Faso should get in the same ring. And that is called globalisation; freedom; liberalisation. This is nonsense. This is absolute nonsense. You protect the weak until they become strong before they can compete. Always. This is the rule. This is the rule everywhere.¹⁴

It is important to understand that government intervention and an industrial policy means going well beyond the basics. Dr John Page, Senior

¹⁴ Julius Nyerere, Speech, 1995

Fellow at the Brookings Institution's Africa Growth Initiative and former Chief Economist for Africa at the World Bank, puts this well:

One of the key insights of *Made in Africa* [his recent book] is that the “investment climate reforms,” beloved of the World Bank and some bilateral donors, including the United States, have not and will not bring industry to Africa. While industrialisation cannot succeed without the “basics” that make up the investment climate—infrastructure, skills, and institutions—these alone are not enough. Since 2000, investment climate reform programmes have become widespread in Africa, often as key components of budget support. According to the OECD, around one-quarter of official development assistance (some US\$21 billion per year) currently supports the investment climate; yet, after 15 years of investment climate reform, industry has failed to take off. Clearly, something more is needed.¹⁵

Professor Dani Rodrik agrees when he says that macro “fundamentals” of stable fiscal and monetary policies, business-friendly policy regimes, steady investment in human capital and institutions, are more important for sustaining growth past middle income than launching it.¹⁶ Thus, we should encourage our government to go above and beyond in its current tasks, and to take radical actions where needed, both for the basics (infrastructure, skills and institutions) and for active industrial policy and strategic protectionism.

2.3 Industrial Roll-out Pace and Strategy

Given the urgency of prevailing poverty levels and mass unemployment in the country, some may suggest it is best to roll out the industrialisation project in one massive swoop across the country. However, pragmatism and limitations on resources would indicate that it is a better idea to first experiment in one or two industrial locations or cities before rolling out to the whole nation in calculated steps over several years. There are many exciting industrial projects, but we simply do not have the implementation and financial capabilities to roll out across Tanzania all at once, to do so well and to ensure high quality outcomes.

Getting our programmes to work therefore requires, among others:

1. A high level of strategic collaboration and coordination between and among governments, institutions and private enterprise
2. Targeted public investments in infrastructure, primarily energy, but also transport, communication, water and others

¹⁵ John Page, "Foresight Africa: Sustaining Domestic Growth", Brookings Institution, 2016

¹⁶ Dani Rodrik, "Is the Age of Growth Miracles Over?", 2016

3. Building high levels of trade negotiation competences, trade and investment policy design and execution
4. A nationwide reform of our education systems to produce a skilled workforce for the 21st century industries
5. Huge amounts of project financing
6. Strategic acquisition of partnerships, IPs and patents
7. World class investment facilitation legal framework
8. Building of local content units to capture and retain skills and financial competences necessary for sustainable industrialisation

We will find that most times, our central and local governments, institutions and private enterprises across the nation may not have enough people with good enough financial, logistical and implementation capabilities to coordinate and collaborate effectively among one another in the quest to deliver on our industrial aspirations. This means that scaling industries, no matter how carefully we approach the project, will necessitate that local financing and ownership be significantly diluted and foreign ownership of industries be accepted, even welcomed and encouraged, especially during the takeoff years of this project.

The reality also is that no matter how much we brainstorm and account for issues theoretically, when things actually play out practically, we are bound to face unexpected challenges. Therefore, starting small and experimenting would enable us to fail fast, learn quickly, and change things around rapidly and as necessary. After fine-tuning the model over a period of time, we can then scale with higher quality across the nation instead of instantly scaling across the nation, perhaps at a lower quality, given limited implementation and financial capabilities, being unable to fine-tune and manage efficiently when facing challenges, and thereby ending up with a mess of a national industrialisation programme.

Deng Xiaoping pursued this “think big, start small, move fast” industrialisation model in China in 1980, when he designated Shenzhen as China’s first SEZ, and experimented there with market capitalism that was guided by ideals of Chinese socialism. It was only after twenty years of experimenting, learning and fine-tuning in Shenzhen that the Chinese government gradually built another 100+ industrial and economic zones across the nation.¹⁷ In short, depending on the context, we can either instantly roll out across the nation or we can first experiment and then roll out. For purposes of this exercise, we recommend the Chinese approach of starting with a mega SEZ in one location (along the lines of Shenzhen), growing it over 10-20 years, fine-tuning and perfecting it before rolling out several editions of the same elsewhere around the country.

¹⁷ "Special Economic Zones of China", Wikipedia, 2016

Rolling out too many industries in too many locations across the country will have the additional negative effect of stretching available meagre resources such as energy and finance to breaking point. It is therefore logical that if we want to succeed, we will need to start on a small, even experimental scale, say by building one big industrial park or special economic zone for carefully selected value chains, in Dar es Salaam/Bagamoyo/Tanga, Morogoro or Mtwara, and only scaling up after sufficient experience, organisational and financial ability has been acquired.

2.4 Secure, Affordable Sources of Energy to Power Tanzania's Industrialisation

Economic historians are in agreement that the onset of the Industrial Revolution in Great Britain 250 years ago is the most important event in the history of humanity since the domestication of animals and plants. The vital lesson we can take from the historic events that marked the Industrial Revolution is that any transformative wave of economic change is almost always set in motion by the discovery of new, more powerful, widely accessible sources of energy; the kind that is capable of radically changing the manner in which production is done and consequently, the speed at which economic growth can occur.

In a landmark think-piece launched during a speech to the 2nd Germany-Tanzania Renewable Energy Summit in Dar es Salaam on 11th July 2016, co-author of this book Ali Mufuruki told his audience that, “If Africa is to escape the shackles of poverty, despair and hopelessness once and for all, it must launch its own 21st century equivalent of the industrial revolution that transformed the world nearly 250 years ago.”¹⁸ He added that for the revolution to be sustained and truly owned by Africans, a new, affordable, accessible and abundantly available source of energy, associated industrial value chains and technologies must be found and harnessed by Africans. He proposed solar power as the 21st century equivalent of the steam engine that famously powered the Industrial Revolution two and half centuries ago. We will come back for a more detailed discussion on the merits of solar and the central role it can play in powering Tanzania's industrialisation project. For now, however, let it suffice that we are making an unequivocal proposition for the adoption of solar energy as a principle driver of Tanzania's industrialisation effort.

¹⁸ Ali A. Mufuruki, "Africa on the brink of a solar-powered industrial revolution" a Think Piece for the 2nd Germany-Tanzania Renewable Energy Summit, Dar es Salaam, 2016

2.4.1 Africa's Steam Engine Moment

“The one industry that comes to mind for me as the most promising and transformative driver of positive change, one that has the power to radically change factors of production, influence new and sustainable patterns of consumption, lifestyle evolution and economics in Africa in the 21st century is renewable energy and in particular solar energy.”

Chapter 3

Focus on Manufacturing and Building Capabilities

3.1 Manufacturing is the Single Most Important Factor

Historically, value-added processing and manufacturing have been the bedrock of development, as Professor Ha-Joon Chang puts it: “History has repeatedly shown that the single most important thing that distinguishes rich countries from poor ones is basically their higher capabilities in manufacturing.” Why has this been the case?

There are a number of special characteristics of manufacturing, which Professor Chang helps to elaborate, that make this the case, as detailed below.

3.1.1 Productivity and Economic Growth

The manufacturing sector typically experiences more rapid productivity growth than any other activity in the economy, such as agriculture and services. Manufacturing lends itself much more easily to mechanisation and chemical processing, with few natural restrictions, and little loss of quality. For example, the rate at which, say, pins are produced in a small factory has gone from hundreds a day to tens and hundreds of thousands a day, due to mechanisation over the years. The equivalent of a 10,000x or 100,000x increase in productivity in agriculture would mean reducing the wheat growth period from 6 months to 6 minutes, which is impossible. Similarly, it is simply impossible to increase productivity of services at that rate. Imagine a single haircut or musical piece or calling centre service call being reduced to microseconds in the interest of “higher productivity”.

3.1.2 Technological Spillover Effects

The manufacturing sector is the ‘learning centre’ of the economy, as the improvement in innovation, productivity and technological capabilities have tremendous spillovers into the rest of the economy. Better, more productive and more innovative capital goods such as machines make the manufacturing, and energy sectors more efficient. Better, more efficient cars, aeroplanes, trains and trucks make transportation of humans and goods

much easier and more environmentally-friendly. Cheaper, better mobile phones make communication easier and have led to call centre services and financial services being offered through telephone networks and devices. Better intermediate goods such as chemical fertiliser improve agriculture. The list goes on and on.

3.1.3 Base for Services

Many services are based on the production of goods. A lot of the logistics, transportation and retail services are fundamentally based on the movement and exchange of manufactured goods. A lot of the banking, design and consulting sectors find their strongest clientele in manufacturing. As Professor Ha-Joon Chang puts it,

All those supposedly knowledge-intensive services, such as finance, design and engineering, sell mostly to manufacturing firms, so their success depends on manufacturing success. Countries can specialise in and export these services but over time, they are likely to lose their competitiveness in these services because they need close interaction with the customers in the manufacturing sector in order to improve their quality and productivity.

3.1.4 Organisational Innovation

Major productivity increases in other sectors, especially in services, have been transferred from manufacturing, not just in technology as described above, but also in organisational capabilities. Examples of this include modern inventory management techniques in the retail sector, and the assembly technique used in McDonald's and other fast-food restaurants. Computer-controlled, timed feeding mechanisms in agriculture in the Netherlands, for example, have made it the third largest exporter of agricultural products in the world despite the fact that it has very little land.

3.2 Building Domestic Firm and Individual Technological/ Organisational Capabilities

All developed nations that have achieved sustained economic growth have done it through the build-up of domestic productive capabilities, or, industrialisation. Indeed, “industrialised” is synonymous with “developed”.

If Africa is to develop, it needs to build up its domestic productive capabilities and more specifically, the productive capabilities of its firms and its individuals. When thinking of building firm capabilities, it is important to focus on both technological and organisational capabilities. More often than not, too much attention is paid to build-up of technological capabilities, and not enough to build-up of organisational capabilities. Indeed, individuals organise themselves into firms, entities larger than themselves, such that

their individual efforts collectively create something greater than the sum of their parts, and larger, more complex, well-functioning organisations are the hallmark of industrialisation. For example, 489,000 engineers, managers, designers, salespeople, drivers, cleaners, among others, work together under one umbrella to bring to life what we know as Samsung. A million people at Foxconn City in China are responsible for the production of the world's most iconic mobile phone, the iPhone. It is claimed that at one point Foxconn Industries had 50,000 engineers in one factory campus. That is an indication of the importance of human capabilities if a country seriously wants to industrialise. Dr. John Page puts this well:

The central insight of the capabilities literature is that in most industries, capability is not codified in a piece of knowledge that can be embodied in a blueprint – technology. Technology can be purchased. Rather it [capability] is the 'tacit knowledge' or 'working practices' possessed jointly by the individuals who comprise the firm's workforce. These are the behaviours or know-how to be used either in the course of production or in developing new products. The capabilities that must be developed in the course of industrialisation are therefore mainly embodied in complex and inter-related working practices.¹⁹

3.3 Tanzania's Greatest Resource: Its People

Our people—and their inter-workings—are our most valuable asset. The most important thing to ensure in our development trajectory, whether through promoting national industry, FDI, SEZs, etc, is that their skills and knowledge are constantly being upgraded; that they are becoming more productive; that they are becoming better and more effective at creating and operating in larger, more complex organisations; and that they become more and more well-versed in the ins and outs of the creation, operation and maintenance of different and more advanced technologies. FYDP II focuses heavily on technological capabilities, innovation, and human capital development, but there is a need to focus on organisational capabilities as well. This lack of focus on organisational capabilities may be one of the main reasons for the small presence of large and mid-size manufacturing across Africa:

One explanation for the near absence of large firms in sub-Saharan Africa's light manufacturing pertains to the skills required to organise and manage medium and large firms. The capabilities of small entrepreneurs are not adequate for graduating from the typical small enterprise into the very different population of mid-size

¹⁹ John Page, "Can Africa Industrialise?" *Journal of African Economies*, 2012

manufacturers, which need in-depth industry knowledge and experience in managing a certain scale of operation.²⁰

There is also an interesting push-and-pull interplay between industry and individual productive capabilities. Improving individual productive capabilities is a push factor in pushing for industries to blossom. Simultaneously, blossoming industries have a pull factor in encouraging and incentivising individuals to strive to improve their capabilities. These individuals know for sure that if they do spend time, energy and money to upgrade their skills and capabilities, they will have a good chance of getting these better, more secure, higher-paying jobs and they won't just have upgraded only to remain unemployed. As the Economic Commission for Africa put it in their 2013 report: "Industries are also important places of learning, where the deliberate and proactive promotion of technologically advanced and more complex sectors provide opportunities for workers and enterprises to enhance their capabilities to diversify."²¹

3.4 Backward and Forward Integration

Part of building domestic productive capabilities means that as we pursue forward integration, i.e., processing commodities to produce products and going further in the value chain, we must also begin to pursue backward integration, i.e., producing inputs to be used in commodity production and commodity processing. These inputs include intermediate goods such as fertilisers, chemicals and explosives, as well as capital goods such as heavy machinery. For example, instead of selling raw cotton, we must begin to forward integrate and process the cotton into clothing, and backward integrate and produce both the fertilisers used in cotton farming as well as the machines used to process the cotton into clothing. We must also develop capabilities in research and development to get better seeds and improve agricultural output through application of science. Intermediate goods (such as fertilisers) and capital goods (such as machines) accounted for US\$ 4.8 billion and US\$ 3.5 billion or about 75 per cent of all our imports in Tanzania in 2014.²² One study of 49 large manufacturing industries in Tanzania showed that, on average, 70 per cent of inputs are imported; for a third of the firms, 100 per cent of inputs are imported.²³

Uzbekistan's car industry is a good example of defying the Washington Consensus and succeeding tremendously in both forward and backward integration. In 1993, when structural adjustment policies were being readily

²⁰ "Light Manufacturing in Africa", World Bank, 2012

²¹ "Making the Most of Africa's Commodities: Industrialising for Growth, Jobs and Economic Transformation", Economic Commission for Africa, 2013

²² "Tanzania Country Profile", Economic Commission for Africa, 2016

²³ "The Performance of the Manufacturing Sector in Tanzania: Challenges and the Way Forward", Brookings Institution, 2014

adopted by developing countries, Uzbekistan defied the status quo, and after President Islam Karimov visited South Korea, a joint venture was set up between Uzbekistan and Daewoo (Korea's second largest car maker at the time) in the form of the UzDaewoo plant. UzDaewoo auto's production grew from 25,000 cars in the first year of production in 1996 to 230,000 by 2011. The forward integration manufacture of cars is mostly for local demand.

Uzbekistan exports increasingly to Russia and other Central Asia countries. Uzavtosanoat, the state-controlled joint stock company with 51 per cent government stake, is the parent company of 51 automobile-related enterprises (including UzDaewoo, now called GMUzbekistan) with 21,000 employees. Backward integration has also succeeded tremendously as, "The industry complex today has more than 200 enterprises supplying locally manufactured parts and components, and has the ability to produce more than 260 types of components. The level of localisation exceeds 50 per cent for some of the new models and 80 per cent for the older ones."²⁴

We can try to invent our own machines, but it is far easier to import the first machines, and to replicate them locally, to innovate and improve upon these replications and to sell them locally. On the other hand, we can also invite foreign producers of machines to produce in Tanzania through joint ventures as Uzbekistan has successfully done with cars and we can quickly learn from them, and backward integrate where necessary, also as Uzbekistan has done. Either way, we start with a whole new industry of making machines, we supply local industries with much cheaper machines, we save foreign exchange that would have gone into importing these machines, and we build productive capabilities.

Is this considered "stealing" technological capabilities of other nations? The reality is that, as Professor Ha-Joon Chang points out, this is how all industrialised countries built domestic technological capabilities, or this is at least how they got their start. Industrialised nations that oppose these practices are being hypocritical, whereas developing nations that do not do so are naïve and will never be able to build domestic technological capabilities.

Textile, iron and steel, construction and solar energy industries, as discussed later, will be good places for both forward and backward integration. Ultimately, industrialisation means nothing if we are unable to make things that make things.

²⁴ Ha-Joon Chang, "Transformative Industrial Policy for Africa", Economic Commission for Africa, 2016

Chapter 4

Industrial Development Lessons and Prioritisation Analysis for Tanzania

4.1 Local/Regional Markets

Demand drives production. Before a firm makes anything, it asks itself: is there an existing market demand for this? Or could there be a potential one? Similarly, an industrial policy is implemented to produce goods and services that will be bought. So, naturally, the market is a crucial first thing to consider.

Domestic industries should produce, from the get-go, for both local markets and global markets. The local market has large needs. Producing to cover local needs, wherever possible, is an easy way for domestic industries to launch, establish clear market channels, build up productive capabilities and achieve economies of scale, and is a springboard for these industries to launch into similar regional African markets.

Table 2: Demand and supply: Global markets and Tanzania's endowments

Demand: markets	Supply: Tanzania's endowments
Local/regional markets	Young, low-cost labour force
Global markets	Natural resources
	Strategic maritime location

Many of the products currently imported into Tanzania can competitively be produced domestically, and Tanzania should encourage this, not only for the above reasons, but also because this would save valuable foreign currency, which can instead be used to purchase/license foreign technologies.

There are three major areas of domestic demand to consider:

1. Consumer

With 50 million people, the local Tanzanian market is clearly quite large, and this is reflected in the fact that household consumption accounts for 67 per cent of GDP.²⁵ Consumer goods imports amounted to US\$ 2.6 billion (23 per cent of US\$ 10.8 billion total worth of imports) in 2014, with food and foodstuffs being the largest consumer good import, accounting for US\$ 672.3 million. Other major consumer goods imports include pharmaceutical products, paper products, plastic items, optical and photographic materials, textile apparels, among others. The demand for consumer goods grew at 8 per cent in 2014, and will continue to grow. Many of these are basic products that Tanzania could, clearly, easily manufacture domestically.

2. Intermediate goods and capital goods

These account for US\$ 4.8 billion and US\$ 3.5 billion worth of imports. Some of these, such as, fertilisers, some industrial raw materials and some building and construction materials, can easily be produced in Tanzania, given the potential for various petroleum, chemical and iron/steel industries (given the availability of raw materials). With these industries, Tanzania could also produce parts for machinery and transport equipment.

3. Government

The government is the single largest entity and market in the country that consumes products and services. They demand furniture and stationery for their offices, water and tea for consumption, building materials and protective helmets for their road and building projects. For the year 2016-2017, the government expenditure is set to be US\$ 13.4 billion, of which, US\$ 8.0 billion is for recurrent expenditures (US\$ 3 billion for wages; US\$ 1.4 billion for other use; US\$ 3.6 billion for debt servicing) and US\$ 5.4 billion for development. Through the US\$ 1.4 billion for other use and US\$ 5.4 billion for financing development projects, the government has huge purchasing power, and government off-taker contracts and procurement can be a tremendous boost to domestic industries to get their first products out the door. SOEs should strive for the same.

It is important to view this initial focus on the domestic Tanzanian market as a pathway to expanding the entire African market. Many of the consumer, intermediate and capital goods we import into Tanzania that we could replace

²⁵ "Tanzania Country Profile", Economic Commission for Africa, 2016

by import substitution are the same ones other African countries demand. It may not be feasible, at least in the beginning, for domestic Tanzanian producers in several industries to enter into markets like North America, Europe or even Asia, given the intense competition, stringent regulations and certification of products, among other requirements.

African countries, however, provide a tremendous market—146 million people in the EAC; 1.1 billion in Africa; an African GDP of US\$ 2.39 trillion (in 2013)—for Tanzanian products. Intra-Africa trade also tends to be much more industrial, and there are also fewer regulations and smaller production bases in many other African countries (and most will continue to have small production bases, given the lack of a coordinated and coherent industrial policy in them), providing a major opportunity for domestic Tanzanian firms to dive in. Tanzania can become the factory for Africa, and perhaps thereafter, for the world.

The two largest conglomerates in Tanzania—Bakhresa and MeTL—have taken exactly this path: they started out primarily catering to the local Tanzanian market, through their agro-industry, mass consumer goods production and light manufacturing, and after building up a solid consumer base in the nation, they gradually started to expand to regional markets. The competition between these two consumer goods companies is also an example of how local competition can also be a source of quality and technological upgrading (as opposed to just exposure to external competition).

It will likely be difficult to get our own producers off the ground in the beginning because of competition from cheap imports. Our producers will, therefore, need a period of active government support and partial insulation from international competition, as they build up their capabilities to be able to compete with these foreign producers, at which point, this support is phased out. It is also important to keep in mind that this import substitution is needed to boost local industries and to save us foreign exchange needed to buy/license technologies. Similarly, we must keep an eye on franchising of foreign chains, as we attempt to boost retail/producer chains of our own.

Table 3: Tanzania- Imports by major categories²⁶

Import category	Millions of USD						
	Jan-16	Feb-16	Percentage change	Year ending February		Percentage change	Percentage contribution, year ending February 2016
				2015 ^p	2016 ^p		
Capital goods	235.6	211.4	-10.3	3,774.9	3,517.9	-6.8	36.9
Transport equipment	70.7	56.4	-20.2	1,234.7	1,020.1	-17.4	10.7
Building and construction	60.4	51.8	-14.3	1,028.1	843.3	-18.0	8.9
Machinery	104.5	103.2	-1.2	1,512.0	1,654.4	9.4	17.4
Intermediate goods	347.1	326.1	-6.0	4,436.0	3,740.7	-15.7	39.3
Oil imports	247.9	245.7	-0.9	3,452.1	2,772.7	-19.7	29.1
Fertilizers	13.9	11.6	-16.7	123.3	162.7	32.0	1.7
Industrial raw materials	85.3	68.9	-19.3	860.6	805.3	-6.4	8.5
Consumer goods	147.3	149.1	1.3	2,584.3	2,266.9	-12.3	23.8
Food and food stuffs	42.2	22.5	-46.7	631.2	509.4	-19.3	5.3
All other consumer goods ¹	105.1	126.7	20.5	1,953.1	1,757.5	-10.0	18.5
Goods import	730.2	686.7	-6.0	10,797.3	9,525.4	-11.8	100.0

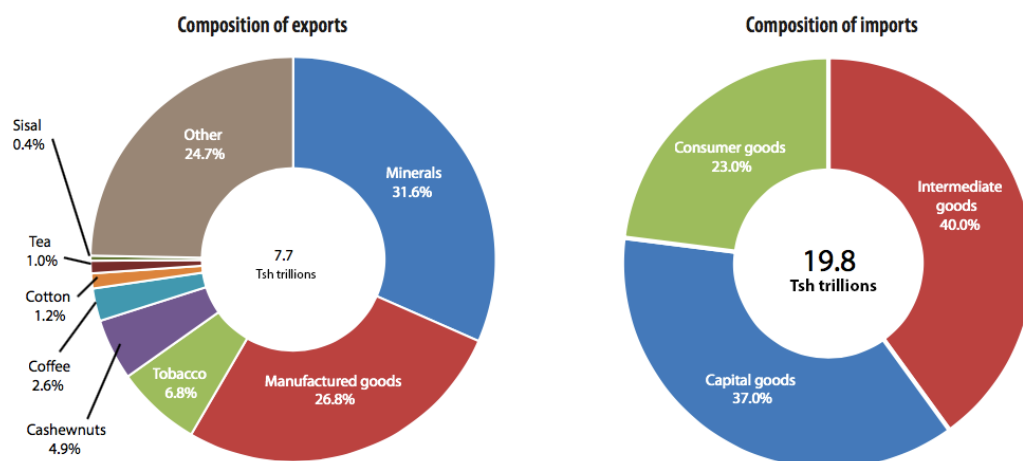
Source: Bank of Tanzania and Tanzania Revenue Authority

Note: 1 includes pharmaceutical products, paper products, plastic items, optical/photographic materials, textile apparels

P denote provisional data

Totals may not add up due to rounding of numbers.

Figure 6: Tanzania - Exports and imports of goods, 2014²⁷



²⁶ Monthly Economic Review: March, Bank of Tanzania, 2016

²⁷ "Tanzania Country Profile", Economic Commission for Africa, 2016

Figure 7: Tanzania - Imports, 2014²⁸

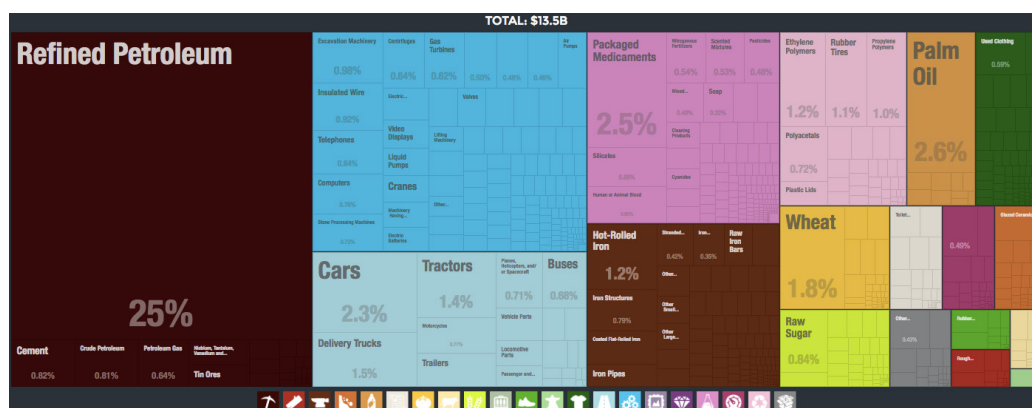


Table 4: National Government Budget: Proposed, 2016-2017²⁹

		Tsh (Million)
	Revenue	2016/17
A.	Government Domestic Revenue	17,798,118
	(i) Tax Revenue (TRA)	15,105,100
	(ii) Non Tax Revenue	2,693,018
B.	LGAs own source	665,415
C.	External Loans and Grants	3,600,807
	(i) General Budget support	483,002
	(ii) Projects Loans and Grants	2,745,659
	(iii) Basket Loans and Grants	372,147
D.	Domestic & External Non Concessional Borrowing	7,475,264
	(i) External Non Concessional Borrowing	2,100,995
	(ii) Domestic Non Concessional Borrowing (1.5 of GDP)	1,597,157
	(iii) Domestic Non Concessional Borrowing (Rollover)	3,777,112
	TOTAL REVENUE (A+B+C+D)	29,539,603
	Expenditure	
E.	Recurrent Expenditure	17,719,100
	o/w (i) National Debt Service	8,000,000
	- Domestic Interest	1,089,150
	- Domestic Amortisation (Rollover)	3,777,112
	- External Interest and Amortisation	1,586,640
	- Government Contribution to Pension Funds	1,141,144
	- Other Expenditure under CFS	405,954
	(ii) Wages and Salaries	6,600,000
	(iii) Other Charges	3,119,100
	- Protected expenditure	2,492,934
	- LGAs expenditure	266,166
	- MDAs operational costs	360,000

²⁸ Tanzania Exports, Observatory of Economic Complexity, Harvard/MIT, 2014

²⁹ Tanzania Budget, FB Attorneys, 2016

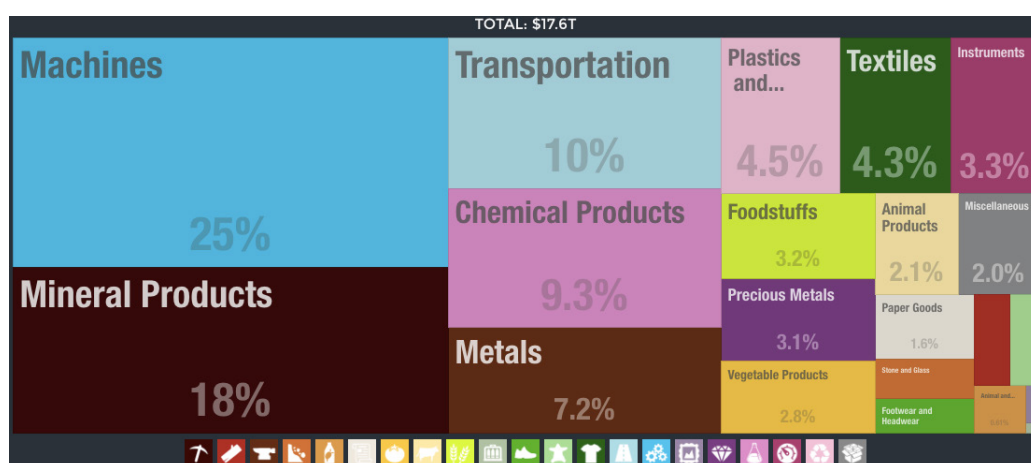
F.	Development Expenditure	11,820,503
	(i) Domestic Financing	8,702,697
	o/w LGAs Expenditure	399,249
	(ii) Foreign Financing	3,117,805
	TOTAL EXPENDITURE (E + F)	29,539,603
	BUDGET DEFICIT	4.5% of GDP

4.2 Global Markets and Export Push

Global GDP in 2014 was US\$ 77.83 trillion, or about 1,600 times the size of Tanzania's GDP, and global trade in goods in 2014 was US\$ 17.6 trillion. Global purchasing power is so large that expertise in one product for export to the world may earn Tanzania more money than import substitution for all products imported to Tanzania. Replacing all consumer goods imports with locally produced goods would increase our production to an additional US\$ 2.6 billion worth of goods, definitely a sizeable number. And yet, if we were to consider just garments or textiles, an industry that Tanzania can easily enter, if we captured a mere 1 per cent of the US\$ 1.3 trillion global trade in garments/textiles/footwear, we would be exporting an astonishing US\$ 13 billion worth of goods. *In other words, producing 1 per cent of one community of products locally—garments—for the world leads to 5 times the revenue of locally producing 100 per cent of all consumer products that are currently imported into Tanzania.*

The information below, detailing the value of global trade in various sectors, is probably the most important piece of information for Tanzania to consider before it decides to enter any manufacturing industry seriously.

Figure 8: World - Trade, 2014³⁰



³⁰ World Trade, Observatory of Economic Complexity, Harvard/MIT, 2014

Table 5: World and Tanzania - Trade, 2014

Product Family	Global trade value breakdown, 2004 (\$ trillion)	Global trade value breakdown, 2014 (\$ trillion)	Global trade value breakdown, 2014 (%)	Average year-on-year growth rate	Tanzania export value, 2014 (\$ billion)	Share of total exports, 2014 (%)	Tanzania import value, 2014 (\$ billion)	Share of total imports, 2014 (%)	Tanzania share of global export, 2014
Machines	2.53	4.34	27.9%	5.5%	0.113	1.8%	2.22	16.5%	0.003%
Mineral Products	1.22	3.14	13.4%	9.9%	0.8	12.5%	3.94	29.3%	0.025%
Transportation	1.07	1.78	11.8%	5.2%	0.0561	0.9%	1.36	10.1%	0.003%
Chemical Products	0.838	1.64	9.2%	6.9%	0.135	2.1%	1.36	10.1%	0.008%
Metals	0.687	1.27	7.6%	6.3%	0.259	4.0%	1.15	8.5%	0.020%
Textiles	0.484	0.752	5.3%	4.5%	0.409	6.4%	0.434	3.2%	0.054%
Plastics and Rubbers	0.391	0.801	4.3%	7.4%	0.0398	0.6%	0.811	6.0%	0.005%
Instruments	0.317	0.588	3.5%	6.4%	0.019	0.3%	0.201	1.5%	0.003%
Foodstuffs	0.262	0.568	2.9%	8.0%	0.768	12.0%	0.317	2.4%	0.135%
Vegetable Products	0.202	0.49	2.2%	9.3%	1.46	22.8%	0.418	3.1%	0.298%
Miscellaneous	0.198	0.35	2.2%	5.9%	0.0395	0.6%	0.174	1.3%	0.011%
Paper Goods	0.196	0.277	2.2%	3.5%	0.0421	0.7%	0.201	1.5%	0.015%
Animal Products	0.174	0.366	1.9%	7.7%	0.305	4.8%	0.0704	0.5%	0.083%
Precious Metals	0.129	0.553	1.4%	15.7%	1.52	23.7%	0.0025	0.0%	0.275%
Stone and Glass	0.0977	0.168	1.1%	5.6%	0.0464	0.7%	0.18	1.3%	0.028%
Wood Products	0.0881	0.142	1.0%	4.9%	0.0454	0.7%	0.0811	0.6%	0.032%
Footwear and Headgear	0.0739	0.151	0.8%	7.4%	0.0137	0.2%	0.0867	0.6%	0.009%
Animal Hides	0.061	0.113	0.7%	6.4%	0.036	0.6%	0.0205	0.2%	0.032%
Animal and Vegetable Bi-Products	0.0431	0.108	0.5%	9.6%	0.292	4.6%	0.438	3.3%	0.270%
Arts and Antiques	0.0113	0.0213	0.1%	6.5%	0.00196	0.0%	0.000461	0.0%	0.009%
Weapons	0.00629	0.00994	0.1%	4.7%	0.00405	0.1%	0.00206	0.0%	0.041%
Total	9.08	17.6	100%	6.8%	6.4	100%	13.5	100%	0.036%

4.3 Lessons from Global Trade Statistics

Diving into global trade figures, we make some startling observations, for example:

1. Machinery (including electronics) is the product family that has by far the greatest global demand, at US\$ 4.34 trillion, and it is so large that global trade in just one machinery product, integrated circuits, valued at US\$ 498 billion, is worth more than global trade in the entire agricultural product family (coffee, tea, rice, maize, soybeans, fruits, rice, wheat, others grains, nuts, potatoes, etc.), which is valued at US\$ 490 billion. This is a simple statistic that shows that just because we may have an endowment in and suitable conditions for a particular agricultural product, that does not mean we should focus resources there. If Tanzania is truly to emerge as an industrialised nation, it must look at global demand as the biggest factor for producing a product, and not simply domestic natural resources and conditions. Tanzania also imports US\$ 3.58 billion worth of machines, electronics and transportation goods, many of which could easily be assembled domestically.
2. Similarly, global trade in just two textile products, non-knit women's suits and non-knit men's suits, valued as US\$ 102.6 billion, is worth as much as global trade in coffee, cashew, tea, cloves, dried legumes, oil seeds, maize and rice put together. These products are singled out since they are the main vegetable products on which Tanzania focuses, and this comparison demonstrates an example of an industry, textiles/garments/footwear, in which there is incredible global demand, and in which Tanzania can easily enter.
3. Trunks and cases, valued at US\$ 54.2 billion in global trade, and leather footwear, at US\$ 58.8 billion, are by far the largest globally traded products that use animal hides. Rather than Tanzania simply exporting animal hides or leather, Tanzania should instead process animal hides into leather footwear, and trunks and cases, and export these.
4. Global trade in soybeans is by far the most lucrative of all vegetable products, valued at US\$ 58.9 billion. Global trade in soybean meal is another US\$ 32.7 billion, and that in soybean oil is yet another US\$ 9.38 billion. Tanzania should produce soybean and soybean products.
5. There are a very large number of metal products made from iron and steel whose global trade value approaches US\$ 1 trillion. For example, global trade in iron pipes is valued at US\$ 35.8 billion, hot-rolled iron at US\$ 53.4 billion, iron structures at US\$ 47.3 billion, iron fasteners at US\$ 39.3 billion and padlocks at US\$ 12.4 billion. Tanzania also imports over US\$ 1 billion worth of these metal products. As the iron and steel

industry takes off, Tanzania should ensure it produces final products out of our iron and steel, and does not simply export the processed iron and steel.

6. Fish is the most lucrative animal product, with fish fillets, processed fish, non-fillet frozen fish and non-fillet fresh fish, in total, trading at US\$ 69 billion, nearly twice the value of its nearest meat product competitor, beef/bovine meat. Note that fish, here, does not include crustaceans and mollusks.
7. Global trade in cars and trucks is as large as the global trade in all agricultural products combined, both vegetable and animal.
8. Tanzania spends a surprisingly large amount of money to import simple products such as toilet paper, furniture, plastic lids, tyres, soap, cleaning products, fertilisers, rough wood, sugar, rubber footwear, used clothing, non-knit women's suits, and an astonishing amount on palm oil and wheat, though almost half of our imports are just mineral products (like refined petroleum) and machines and electronics (not including transportation).

These numbers lead to the general conclusion that African countries need to seriously look beyond agricultural products, where global demand is tiny, into the realms of machines, transportation, textiles, chemical and metal products. Tanzania can easily enter into several light manufacturing and assembly industries and produce for the world, as will be discussed shortly.

4.4 Foreign Currency

The issue of foreign currency reserves is extremely important here as well. Professor Chang describes this situation well:

In the end, economic development is about acquiring and mastering advanced technologies . . . But in order to be able to import technologies from developed countries, developing nations need foreign currency to pay for them—whether they want to buy directly (e.g., technology licences, technology consultancy services) or indirectly (e.g., better machines). Some of the necessary foreign currency may be provided through gifts from rich countries (foreign aid) but most has to be earned through exports. Without trade, therefore, there will be little technological progress and thus little economic development.

Gold was the single largest export-earning product for Tanzania at US\$ 1.27 billion in 2015; it is therefore key to ask: how much of the gold forex earnings actually come to Tanzania and are used to buy/license/master technologies?

4.5 Tanzania's Endowments

To build up its industries, Tanzania can begin by focusing on three of its major endowments:

1. Young, low-cost labour force
2. Natural resources
3. Strategic maritime location

However, the industries detailed in FYDP seem to focus almost entirely on utilising the second endowment, natural resources, and not as much on the first. The strategies to make the most out of processing our natural resources into final products are also unclear.

As reference, FYDP II recommends the following industries for Tanzania to develop:

1. Automotive industry: tyres, inputs for tractors and agriculture, motorcycle assembly
2. Petroleum, gas and chemical industries: LNG, soda ash, petroleum chemical industrial complex
3. Pharmaceutical industries
4. Building and construction materials industries: ceramics, cement, kaolin
5. Coal for industrial and household use
6. Iron and steel: iron and steel products and technologies
7. Agro-industries and agro-processing: processing of agricultural, livestock, forestry and fisheries products; textile, garment and clothing industries; leather; edible oil; sugar; palm oil; sisal
8. Food and beverages: manufacturing, processing, and preservation of meat, fish, fruit, vegetables, oils and fats; dairy products; grain mill products, starches and starch products and prepared animals feeds; other food products (e.g., bread, sugar, chocolate, pasta, coffee, nuts and spices); bottled and canned soft drinks, fruit juices, beer and wines

We discuss these and some other suggestions in greater detail in this book.

4.6 Light Manufacturing/Assembly

According to Justin Yifu Lin, Professor at Peking University and former Chief Economist of the World Bank, 85 million labour-intensive light manufacturing/assembly jobs will be moving out of China in the next few

years, and this is a prime opportunity for Tanzania to pounce.³¹ Labour-intensive light manufacturing led the economic transformation of many of the most successful developing countries in East Asia, and it can do the same for Tanzania. Ethiopia has already recognised the importance of labour-intensive light manufacturing/assembly, and is forging ahead. Their Growth and Transformation Plan 2010-2015 prioritised manufacturing industries “based on considerations of resource availability, labour intensity, linkages to agriculture, export potential, and (relatively) low technological entry barriers. They include garments and textiles, agro-processing, meat processing, leather and leather products, and construction. For each of these industries, the state has set up supporting institutes to coordinate the value chains effectively (e.g. ensuring efficient supply of inputs to manufacturers) and assist firms with technological upgrading in any capacity needed.”³² It is important to focus on the international export push in light manufacturing/assembly from an early stage because of the vast employment it would create, the tremendous export revenue it would bring in, the scope for growth and the organisational/technological spillover effects.

Like Ethiopia, we must generally look to countries with similar endowment structures and moderately higher per capita income that are doing labour-intensive, light manufacturing (e.g., China, Vietnam, India, Indonesia and Malaysia) and see how we can attract the manufacturing “sunset” industries that begin to leave them, as they begin to lose competitive advantage there, particularly because of rising costs in areas such as in labour. Professor Justin Yifu Lin points out a few examples:³³

- Britain targeted the Netherlands’ wool textile industries in the 16th and 17th centuries; its per capita GDP was about 70 per cent of the Netherlands’.
- Germany, France and the USA targeted Britain’s industries in the late 19th century; their per capita incomes were about 60 per cent to 75 per cent of Britain’s.
- In the Meiji Restoration (in 1868), Japan targeted Prussia’s industries; its per capita GDP was about 40 per cent of Prussia’s. In the 1960s, Japan targeted the USA’s industries; its per capita GDP was about 40 per cent of the USA’s.

³¹ Justin Yifu Lin, *How to Jumpstart Industrialisation and Structural Transformation in Africa*, REPOA, 2016

³² Ha-Joon Chang, "Transformative Industrial Policy for Africa", Economic Commission for Africa, 2016

³³ Justin Yifu Lin, *How to Jumpstart Industrialisation and Structural Transformation in Africa*, REPOA, 2016

- In the 1960s-80s, Korea, Taiwan, Hong Kong and Singapore targeted Japan's industries; their per capita incomes were about 30 per cent of Japan's.
- In the 1970s, Mauritius targeted Hong Kong's textile and garment industries; its per capita income was about 50 per cent of Hong Kong's.
- In the 1980s, Ireland targeted information, electronic, chemical and pharmaceutical industries in the USA; its per capita income was about 45 per cent of the USA's.
- In the 1990s, Costa Rica targeted the memory chip packaging and testing industry; its per capita GDP was about 40 per cent of Taiwan's, which was the main economy in this sector.

4.6.1 Tanzania and Ethiopia: Similarly Competitive in Light Manufacturing

Tanzania, like Ethiopia, has all the necessary inputs for a competitive light manufacturing sector (and even one more than them):³⁴

- 1. Low-cost, productive labour:** The average wage of Ethiopian workers in the footwear sector in Addis Ababa's industrial parks is US\$ 35 per month, lower than Bangladesh's minimum wage of US\$ 68 per month, and far lower than China's average textile sector wage of US\$ 500.^{35,36} Interestingly, Ethiopia's Prime Minister Hailemariam Desalegn earnings is less than US\$ 400 a month. Due to the low-skill requirements of several light manufacturing subsectors, it is possible to train for low costs and in short periods of time (e.g., a garment worker can be trained in about two weeks). Labour productivity in some of Ethiopia's well-managed light manufacturing firms approaches levels in China and Vietnam. Tanzania has the same low-cost labour advantage.
- 2. Abundant natural resources:** Tanzania can locally produce the cotton, skins, hides, among others for garments, textiles, leather, etc. The raw material it cannot produce locally, it can import, as do Vietnam, Ethiopia, Bangladesh and others.
- 3. Privileged access to high-income markets for exports:** The US's African Growth and Opportunity Act (AGOA) and the EU's Cotonou Agreement allow sub-Saharan African products very favourable access, in many instances duty-free, to their respective markets.³⁷

³⁴ "Light Manufacturing in Africa", World Bank, 2012

³⁵ Greg Mills, "Ethiopia's Hailemariam Desalegn: Growth has to be shared to be sustainable", Daily Maverick, 2016

³⁶ Andrea Dijkstra, "Low Wages Draw International Textile Companies to Ethiopia", DW, 2015

³⁷ "Light Manufacturing in Africa", World Bank, 2012

4. **Large local/regional markets:** These allow for “emerging producers to develop capabilities in quick-response, high-volume production and quality control in preparation for breaking into highly competitive export markets.”
5. Access to the coast and maritime export gateways

4.7 Trade in Tasks/Parts

In this scenario, globalisation is our ally and we must make the most of it. A quick win would be in inviting foreign producers in industries such as garments, textiles, electronics and leather, which usually shop around for the lowest labour cost locations. Within these industries, we can focus on both full products as well as in specific tasks/parts. The production process in some manufacturing activities is now often decomposed into a series of steps, tasks or parts (i.e., product R&D, design, production of complex parts, production of simpler parts, assembly, etc). For example, a computer could be designed in Norway, various parts produced in Brazil, Malaysia and Vietnam, and the final product assembled in China.

This trade in tasks/parts (i.e., participation) somewhere along the global value chains, can be tremendous for Tanzania. As Dr John Page points out:

For late industrialisers trade in tasks has great potential. It is easier to master a single stage of the production process than to develop all of the capabilities needed for vertically integrated production. Task-based production has been a major driver of the rapid industrialisation in the new generation of Asian export manufacturers. Exports of assembled garments from Bangladesh and Vietnam have grown at double digit rates over the past 10 years.³⁸

We might not be able to have our own Apple or Samsung company tomorrow in Tanzania, but we can produce parts for or assemble the iPhone and Galaxy.

4.8 Flying Geese and the Psychology of Development

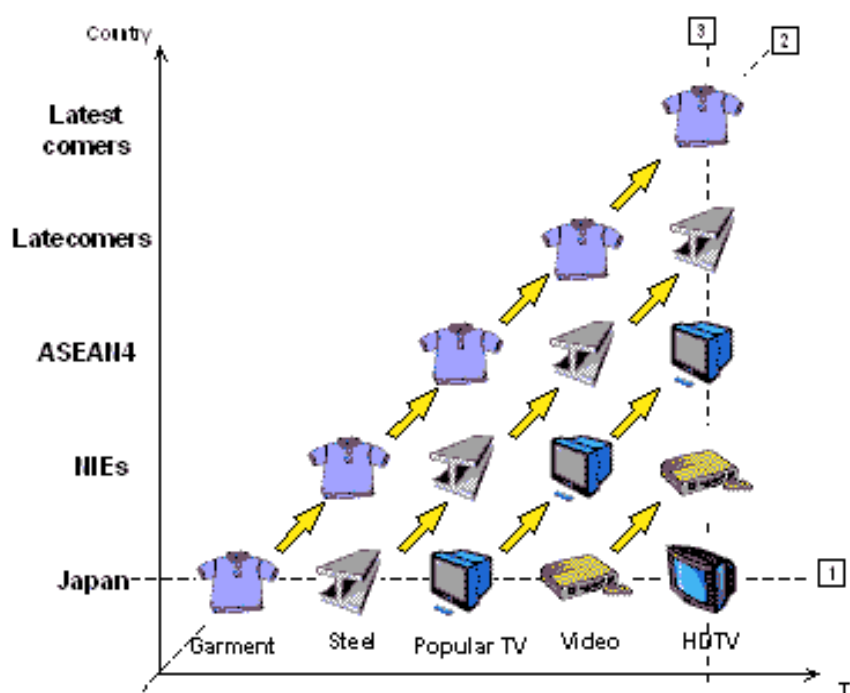
Japanese Professor Kaname Akamatsu describes development in East Asia using what he calls the Flying Geese Paradigm (FGP).³⁹ The idea is that one “lead goose” launches full-force into, say, labour-intensive light manufacturing, but after some time, due to rising labour costs, the “lead goose” shifts away from labour-intensive production to more capital-intensive activities, and these labour-intensive, low-productivity activities

³⁸ John Page, "Can Africa Industrialise?", *Journal of African Economies*, 2012

³⁹ Kaname Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries", 1962

move to the “second line of geese.”⁴⁰ Gradually, the lead goose moves to higher tech production, the second geese to medium tech, and the third geese gain the labour-intensive, low-productivity activities (see Figure 9 below). In Asia, the lead goose was Japan, the second geese were the Asian Tigers, and so on, and their development trajectories from 1950 onward are quite similar to the FGP.

Figure 9: *Flying Geese Paradigm and Structural Transformation in East Asia*⁴¹



It is clear that there was also a major positive psychological effect among other following geese Asian nations that were seeing lead goose Japan, a fellow Asian (a rival or exploiter of many, too, but an Asian nonetheless) experiencing such a tremendous industrial takeoff.⁴² Japan's success became an indicator that industrialisation was not just the domain of white Europeans and Americans, but that Asians could industrialise too.

Is there already a lead goose in sub-Saharan Africa, say, with Botswana or South Africa or Mauritius? No: Botswana became middle income entirely because of diamonds, South Africa's economy is controlled by whites, and Mauritius' economy by people of Indian ancestry. For the flying geese paradigm to work and for the psychological effects to be truly felt, what is required is a black African country, led economically and politically by black Africans, to take off industrially and become lead goose.

⁴⁰ Kiyoshi Kojima, "The 'flying geese' model of Asian economic development: origin, theoretical extensions, and regional policy implications", 2000

⁴¹ Ibid

⁴² Pankaj Mishra, "The ruins of empire: Asia's emergence from western imperialism", 2012

4.9 Lessons from Vietnam

In Vietnam in 2014, an incredible 60 per cent of their US\$ 165 billion worth of exports came from just electronics, textiles and footwear (both full and parts) as exemplified below.

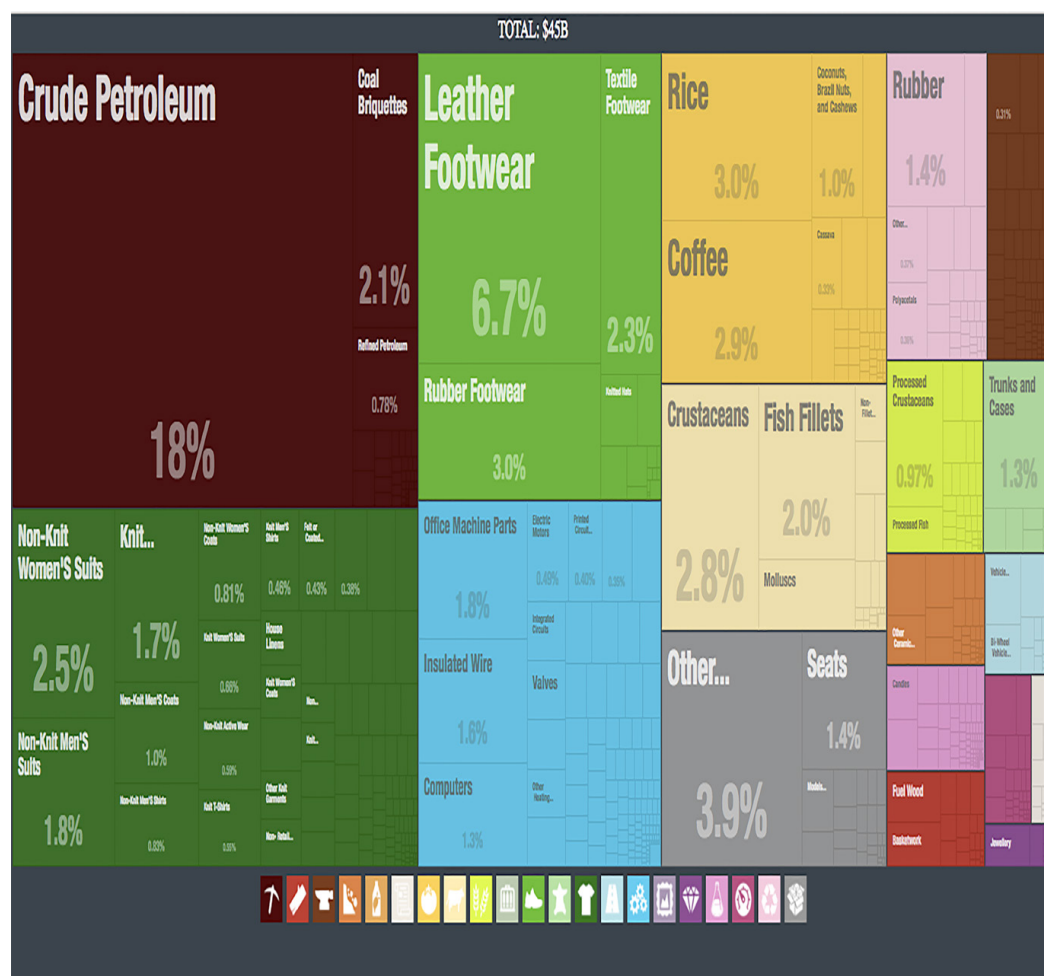
- **Electronics accounted for 35 per cent (US\$ 58.1 billion):** transmission apparatus for radio, telephone and TV; automatic data processing machines; electronic integrated circuits; telephones; insulated wire and optical fiber cables; parts of radios; telephones and TVs; video recording apparatus; and more.
- **Textiles/garments accounted for 16 per cent (US\$ 26.9 billion):** women's suits (not knit); sweaters, pullovers, sweatshirts, etc; men's suits (not knit); men's overcoats (not knit); women's overcoats (not knit); women's suits; T-shirts; cotton yarn of > 85 per cent; garments made of textile felts and nonwoven fabric; and more.
- **Footwear accounted for 9 per cent (US\$ 14.7 billion):** footwear, with leather body; footwear, with textile body; other footwear of rubber or plastics; parts of footwear; and more.

2014 U.S. Exports by Economic Sector

TOTAL: \$6.46B

Economic Sector	Percentage of Total Exports
Manufacturing	18%
Agriculture	7.9%
Mining	7.2%
Petroleum	7.2%
Other Sectors	41.7%

Figure 13: Vietnam - Exports, 2006



As seen in the images above, Vietnam's exports in 1996 stood at US\$ 6.5 billion – not so different from our US\$ 6.4 billion today (2014 estimates) – and just 10 years later, in 2006, they had gotten to US\$ 45 billion. **As we can see from below, in the case of Vietnam, the Textiles, Footwear and Headwear and Machines (including Electronics) have stellar growth in absolute change and percentage change terms consistently through the years, both between 1996 and 2006, and between 2006 and 2014, and they account, by far for the largest share of exports in 2014.** Vegetable Products comes after, and shows steady growth between 1996 and 2014, though nowhere near as spectacular as the three aforementioned. Mineral Products grows tremendously between 1996 and 2006, and then slows to almost a standstill between 2006 and 2014, as would be expected. Metals have a large liftoff, and then continue to grow, their use likely contributing to internal construction growth and in feeding other industries, such as Machines (including Electronics).

Table 6: Vietnam: Growth in Major Exports, 1996 to 2006

Product	1996 (\$ billion)	2006 (\$ billion)	% growth (1996 to 2006)	% growth (1996 to 2006)	2014 (\$ billion)	% growth (2006 to 2014)	% growth (2006 to 2014)
Mineral Products	1.33	9.79	8.46	636%	10.4	0.61	23%
Textiles	1.27	7.69	6.42	506%	26.9	19.21	319%
Footwear and Headwear	0.961	5.77	4.809	500%	14.7	8.93	206%
Vegetable Products	1.17	3.95	2.78	238%	10.6	6.65	281%
Machines (including Electronics)	0.167	4.72	4.553	2726%	58.1	53.38	1176%
Animal Products	0.595	2.95	2.355	396%	5.71	2.76	142%
Animal Hides	0.224	0.733	0.509	227%	3.19	2.457	527%
Plastics and Rubbers	0.091	1.63	1.539	1691%	5.33	3.7	246%
Metals	0.0535	1.12	1.0665	1993%	6.12	5	474%
Wood Products	0.103	0.501	0.398	386%	2.65	2.149	566%
Foodstuffs	0.129	0.984	0.855	663%	4.12	3.136	382%

The key lesson for Tanzania to learn from Vietnam is that Textiles, Footwear and Headgear, Machines (including Electronics) and Metals should be the key areas of focus in manufacturing, as they will have continued spectacular growth over long periods of time, while Vegetable Products have similar consistent growth, though at lower rates.

Mineral Products give a sudden liftoff, after which the growth is stagnant, and hence are not the most reliable for consistent growth, while Animal Products, Animal Hides, and Wood Products are not the best focus areas in the first phase of growth.

4.10 Lessons from Malaysia

The machinery and electronics industry (including transportation and instruments) is the largest in the world, accounting for US\$ 7 trillion in global trade. China, South Korea, Japan, Singapore, Vietnam, Malaysia and

other East Asian nations are global leaders in the industry at various levels of technological complexity. In the course of their economic takeoff, China and Vietnam utilised the global trade in low-technology exports like garments and footwear to launch into industrialisation, and then began building up medium to higher-skill and technologically complex exports such as electronics and the electrical industry, while Malaysia went straight into the latter. As Professor Ha-Joon Chang puts it:

Beginning in the 1970s as a primary product exporter, by 1990 Malaysia had emerged as the world's largest exporter of semiconductors, and among the largest exporters of disk drives, telecommunications apparatus, audio equipment, room air-conditioners, calculators, colour televisions and various household electrical appliances.⁴⁵

Table 7: Structure of Malaysia's E&E Industry⁴⁶

Sectors	Sub-Sectors	Products
Electronics	Components	Semiconductors, passive components, printed circuit boards, metal stamped parts and precision plastic parts
	Consumer	Audio visual products such as television receivers, portable multimedia players (PMP), speakers, cameras and electronic games
	Industrial	Multimedia and information technology products such as computers and computer peripherals, telecommunications equipment and office equipment.
Electrical	Electrical	Boards, panels and consoles, switching apparatus, lamps, air conditioners, vacuum cleaners, ovens, transformers, cables and wires, primary cells and batteries, solar cells and modules

Tanzania can learn many things from Malaysia in order to successfully enter the global electrical and electronics industry:

1. **Labour-intensive assembly first:** In the early 1970s, Malaysia launched into electronics, as did China and later Vietnam, through highly labour-intensive manual assembly of semiconductors, and thereafter followed with assembly of parts in audio and other electronic and electrical products, before advancing to productive complexity.
2. **Targeting “sunset” industries leaving nations just ahead and actively seeking them out:** The Malaysian Investment Development Authority (MIDA), in 1971, “spotted an opportunity in the semiconductor assembly business, where Singapore was trying to move into more complex activities and potentially vacating its place as an assembly hub.

⁴⁵ Ha-Joon Chang, "Transformative Industrial Policy for Africa", Economic Commission for Africa, 2016

⁴⁶ Ibid

MIDA targeted TNCs in the US, directly lobbying them to invest in Malaysia, offering tariff and tax-free zone locations and profit repatriation guarantees.

Clarion and National Semiconductor (NS) started the first operations in the electronics sector in Malaysia in 1972.”

3. **Industrial clusters and government incentives:** The Bayan Lepas Export Processing Zone in Penang is where Clarion and NS set up, and this along with other well-run EPZs, low wages, tax exemptions, government subsidies for training, exporting and R&D activities, etc., incentivised many export-oriented E&E firms from the developed world to relocate their plants to Malaysia.
4. **Building domestic technological and organisational capabilities:** Through technology transfer agreements, local content requirements, government-subsidised R&D, training and skills development, the government has ensured that Malaysian companies have been able to develop significant capabilities and skills and the majority of them have attained intermediate or advanced levels of innovative technological capability forty years later.
5. **Global value chains and trade in tasks:** Given the “trade in tasks” nature of the E&E industry, Malaysia participates, like Vietnam and essentially all other major E&E producers, at various points in the global value chain, importing various parts, producing locally various parts, putting together the imported and locally-produced parts and exporting these, adding value wherever possible. This can be seen in the numbers, where Malaysia’s electrical/machinery exports were valued at US\$ 116 billion (42 per cent of total US\$ 273 billion worth of exports), and imports at US\$ 72 billion (35 per cent of total US\$ 204 billion worth of exports) last year.
6. **Active state intervention and direction:** The Malaysian state intervened, attracted investors, built domestic capabilities, fostered and drove this E&E revolution in Malaysia. There is no doubt about the central role played by the Malaysian state in this. The Tanzanian state would do well to take heed.

Chapter 5

Industry Prioritisation for Tanzania, 2016-2056

As elaborated below, during the first twenty years, the main focus of the industrialisation project should be on the following industries:

1. Garments, Textiles and Footwear
2. Iron and Steel, Metal Products, Light Machinery and Equipment
3. Electronics Assembly
4. Food Processing, Agro-Processing, Fisheries
 - a) Fisheries/Aquaculture
 - b) Soybeans
 - c) Palm Oil, Sunflower Oil, Cotton-seed Oil
 - d) Sugar: The Sleeping Giant
 - e) Wheat and Rice at Industrial Scale
 - f) Mass Consumer Goods
5. Construction Industry and Materials
6. Solar and Other Renewable Energy
7. Lithium-ion Batteries and Electric Car
8. Mineral Processing and Other Value-adding Industrial Activities

More industries will be added as capabilities (both technological and organisational) are built.

5.1 Garments, Textiles and Footwear Industries

FYDP II suggests,

With the right policies, infrastructure and strongly coordinated investment promotion efforts, the industry can create up to 10,000

new jobs and annual exports worth US\$1 billion from both cotton and synthetic garments in the next ten years.

Surely, we can do much better than this? The global trade in garment/textiles/footwear (usually mixed in categorisation) industry is worth over US\$ 1.3 trillion, and it has been by far the most important light manufacturing sector among low-income and lower-middle income countries, used to propel themselves to middle income.

As discussed before, labour-intensive light manufacturing/assembly industries—and 85 million jobs—are moving out of China, and China, in 2014, exported US\$ 336 billion of garments/textiles/footwear (14 per cent of the total US\$ 2.34 trillion worth of exports), meaning that hundreds of billions of dollars' worth of export industry and tens of millions of jobs are leaving China just in garments/textiles.

Vietnam is another country for us to keep in mind for this situation: In Vietnam, the garments/textiles industry accounted for US\$ 41.6 billion worth of exports in 2014, with over 1 million people employed in the garments/textiles/footwear industry, and they went from US\$ 400 million worth of exports in the industry in 1992 to US\$ 5.6 billion in 2002, just ten years later.^{47,48} Tanzania is at US\$ 400 million right now in its exports in this sector, and FYDP aims to get to US\$ 1 billion by 2025, very small growth compared to Vietnam. Note that Vietnam did it in the 1990s without the large movement of garment industries out of China that will happen over the next ten years.

As addressed in a previous section, Tanzania has everything required for a booming light manufacturing sector, with low-cost, productive labour, abundant natural resources, privileged access to high-income markets for exports, and access to the coast. Garments/textiles is the easiest of light manufacturing industries to enter, and if Tanzania acts quickly and deliberately, we can capture a significant chunk of what is leaving China, and do much, much better than \$1 billion in exports and 10,000 jobs by 2025. The most essential ingredient is government proactivity.

The Tanzanian government must play an active role in inviting some garments, textiles, leather and footwear industries from China. We can improve the business environment all we like, but industries will stay in China or move to other nations, unless we proactively bring them to Tanzania. The late Prime Minister of Ethiopia, Meles Zenawi, visited China in 2011 and personally invited Huajian Group to set up a shoe factory in Ethiopia. Helen Hai, then Vice President of Huajian and now CEO of Made in Africa Initiative, was assisted in every way possible to set up the factory, and after a mere 3 months, the factory was already exporting shoes; by 6 months, it

⁴⁷ "Vietnam Exports, Observatory of Economic Complexity", Harvard/MIT, 2014

⁴⁸ "Light Manufacturing in Africa", World Bank, 2012

had doubled Ethiopia's footwear export revenue, and in under 2 years, it had employed 4,000 Ethiopians.⁴⁹ Huajian now plans to expand its workforce to 30,000 as part of a US\$ 2 billion investment, and other large producers of shoes have already moved in, while Helen Hai has recently launched C&H Garments in Rwanda, after discussions with President Paul Kagame.⁵⁰ In some ways, it is not so different from an investing company proactively seeking out good investments, but in the reverse order: we need to be proactively seeking out good investors.

Note that, with 30,000 employees, Huajian, one labour-intensive light manufacturing company, would single-handedly employ as many people as are to be employed in all the planned resource-dependent heavy industries in Tanzania's SEZs by 2020, according to FYDP II.

If executed well, the garment/textile industry can lead Tanzania into semi-industrialised status by 2025. Among many other suggestions, we call for the immediate establishment of a Garment City along the coast, focused entirely on the garment/textile/footwear industry.

As we attract these industries to Tanzania from, for example, China, we must ensure we quickly learn and build many of our own.

5.2 Iron and Steel, Metal Products, Light Machinery and Equipment

Processing our raw materials before export is key, and it is laudable that we are ensuring that this happens. However, as Professor Calestous Juma (Harvard Kennedy School) and Professor Ha-Joon Chang (Cambridge University) point out, there is little evidence to suggest that simply processing raw materials for export will lead to industrialisation.⁵¹ This is the reason for the focus on light manufacturing in the section. With regard to processing resources, the key focus should be on how to use this processed product:

1. to build associated domestic industries
2. to earn foreign revenue, to acquire foreign technologies and to domesticate and expand them for more resource processing and associated industries.

More concretely, in the example of nascent Liganga Iron and Steel Industry in Tanzania, we need:

- to use the processed iron and steel in associated domestic industries, (e.g., construction steel and frames, hand tools, roofing sheets, cutlery,

⁴⁹ "How Africa Can Succeed Asia", *Africa Business Magazine*, 2015

⁵⁰ "Chinese Manufacturers Look to Rwanda", *Financial Times*, 2015

⁵¹ Calestous Juma, "Diamonds Are Not Forever – Knowledge Is Power", *New African Magazine*, 2015

car parts, trains and ships, bridges, railroad tracks, parts of (or whole) appliances such as stoves and refrigerators, etc). As discussed previously, global trade in iron and steel products is valued at close to US\$ 1 trillion, with trade in iron pipes valued at US\$ 35.8 billion, iron structures at US\$ 47.3 billion, iron fasteners at US\$ 39.3 billion, padlocks at US\$ 12.4 billion, and iron housewares at US\$ 10 billion, whereas industries that use iron and steel, (e.g., machinery, transportation and electronics), are even larger; for example, with vehicle parts trading at US\$ 363 billion globally and refrigerators at US\$ 43.3 billion.

- to use the money from the export revenue to import and domesticate technologies to be used, for example, in building all the previously-mentioned industries and for new industries (say, a few other iron and steel complexes), and funding R&D to ensure domestication and replication of these technologies so that we do not have to keep importing them or keep engaging in joint-ventures that do not benefit us nearly as much as they should.

Developing associated industries, beyond just processing of resources will ensure a lot more employment generation. As the FYDP II currently stands, the large-scale processing of resources in Tanzania has limited scope for employment, with only few tens of thousands of jobs being generated, which, from a job creation standpoint, is quite small given Tanzania's large labour force. For example, the iron and steel complex at Liganga will employ 4,000 people, clearly a large number, but we can do better and employ more people, if we build massive associated industries around our iron and steel industry.

The first market of these domestic associated industries will be local, and where necessary, the state must strategically protect them to enable them to grow. In most of the cases, it will be cheaper to produce locally, given that our resources are right here and that we have low costs of labour. For example, when recently discussing the revamping by NDC of the General Tyre factory in Arusha, the Minister of Industry, Trade and Investment, Charles Mwijage, mentioned that the country will need an estimated 44 million tyres just in the next three years, and that the factory should be able to produce profitably without any subsidies. It may be the case, sometimes, that, for example, the first batch of cutlery we produce is slightly more expensive than, say, Chinese imports, but after careful strategic nurturing and economies of scale, we will likely be able to produce just as cheaply, if not more so, given the reasons above.

The overall outlook, as discussed previously, should go beyond simple import substitution. The domestic market is the launching pad for us to build

domestic industries, but they must aim to quickly become competitive at the regional and global level. Vietnam, for example, went from exporting almost no metal products to currently exporting US\$ 6.1 billion worth of them (mostly iron products), valued at around the same as all our current exports combined, and this does not include all the metal going into their machinery, electronics and transportation sectors. Of note is Vietnam's shipbuilding sector, in which they went from producing no ships in 2002 to becoming the 7th largest producer of ships in the world by 2014.

We should not, however, try to build industry upon (or even extract) all our resources at once at this moment because we currently lack domestic technological capabilities, and we would therefore be entering into too many joint ventures with importing country companies/foreign investors, giving them too much, and gaining little. Industrialisation is the build-up of domestic productive technological and organisational capabilities, and not simply a bumping up of GDP by a few points. The reality is that this build-up – acquisition, domestication and expansion of local technological capabilities – will take a while, but it must be done. With more use, raw materials run out, but human knowledge and technological capabilities grow. All of the above applies to the potential petroleum, gas and chemical industries that are hopefully going to develop in Tanzania. If we do not strategically plan this way with our existing resources, history will repeat itself; we will have another gold-like situation, whereby we have been the third largest producer of gold in Africa for over 15 years, but with little to show for it in terms of local productive capabilities within the industry or even supporting it, with no large local gold-mining company, no major engineering services firm, etc.

5.3 Electronics Assembly

The electronics and machinery industry (including transportation and instruments) is the largest in the world, accounting for US\$ 7 trillion in global trade. China, South Korea, Japan, Singapore, Vietnam, Malaysia, and other East Asian nations all targeted “sunset” electronics industries leaving other countries, making the most of the global trade and tasks/parts. They all first started out with highly labour-intensive, low-technology manual assembly of electronics and electrical products, and gradually built up to medium-technology and high-technology, while simultaneously moving from assembly to production. Thus, in terms of light manufacturing/assembly, the Tanzanian government should first focus on ensuring a major garment, textile and footwear boom, and turn its sights soon thereafter to electronics, starting with assembly, and then slowly moving to production.

5.4 Food Processing, Agro-Processing, Fisheries

At 22 per cent, agriculture accounts for the single biggest chunk of the nation's GDP, but it has failed to modernise after more than fifty years of trying. It remains largely in the hands of subsistence farmers, and hence is incapable of creating meaningful jobs or associated industrial production. Africa (and Tanzania) today lives off imported food (83 per cent of all processed food consumed in Africa is imported and recent studies have shown that more than 70 per cent of the tilapia fish consumed in East Africa, the indigenous home of the species, is now being imported from China).

The main causes of low productivity in agriculture are:

- lack of modern farming skills
- low use of irrigation and other farming technologies
- over-reliance on weather
- use of poor seeds
- low usage of fertilisers
- inefficient crop marketing systems
- lack of access to post harvest storage infrastructure
- poor extension services to farmers
- low levels of agricultural research and development
- unregulated food imports
- policy dysfunction.

The same or similar factors are constraining growth and development in the fisheries and animal husbandry sub-sectors.

Agriculture is a huge growth industry for Tanzania with the potential to contribute much more to GDP and to create millions of meaningful jobs for Tanzanians. The development and modernisation of agriculture through addressing of the constraints listed above should be a key pillar. However, while we should encourage processing and adding value to all our agricultural products, since we are largely an agricultural economy, we should keep in mind that no country has become an industrial powerhouse through agro-processing alone, and we should therefore be careful not to put all our eggs in the agro-processing basket. There are several reasons for this:

1. **Small global trade in agricultural products (processed and not), and limited scope for growth:** As mentioned previously, global trade in just two textile products, non-knit women's suits and non-knit men's

suits, valued as US\$ 102.6 billion, is worth as much as global trade in coffee, cashew, tea, cloves, dried legumes, oil seeds, maize and rice put together; one machinery product, integrated circuits, valued at US\$ 498 billion, is worth more than global trade in the entire agricultural vegetable product family. If the world does not demand your product, no matter how well-endowed you are in it, you will not sell.

2. **Limited incentives for industry movement:** As discussed above, 85 million jobs and hundreds of billions of export industry dollars in light manufacturing will be moving out of China over the next ten years, since labour costs are the most important factor, and they will have to go somewhere. However, there is little reason, for example, for the tea industry to move from Sri Lanka, China or Kenya (the largest exporters) since the natural resource, tea, is the most important factor, and Tanzania does not have production cost advantages over these other countries. As such, getting to, for example, US\$ 1 billion in tea exports is virtually impossible, since global tea trade stands at US\$ 6.8 billion, and since there is little reason for anyone to move, we would be facing fierce competition in a small marketplace.
3. **Limited productivity spillovers:** The aforementioned light manufacturing sector, which, when it booms, brings about spillovers of technological and organisational build-up, can lead to more productive agro-processing. It is very rare to see the converse, where agro-processing build-up brings about a boom in light manufacturing.

Nevertheless, there is large potential in some products, as detailed below.

5.4.1 Fisheries/Aquaculture

Fish is the most lucrative animal product in the world, with fish fillets, processed fish, non-fillet frozen fish, and non-fillet fresh fish trading at US\$ 69 billion, nearly twice the value of its nearest meat product competitor, beef/bovine meat.⁵² Most importantly, Lake Victoria, Lake Tanganyika and Lake Malawi, the three freshwater lakes that Tanzania shares with various neighbours, put together, contain more than 30 per cent of all the freshwater on earth. This is a tremendous opportunity for fishing, particularly in the style of breeding within cages and nets in the water, and Tanzania can be a world leader if it adopts modern aquaculture techniques.

Aquaculture is new to Tanzania, but it is very well developed in South America, the Far East and the Scandinavian countries. Its potential as a transformative industrial value chain is huge, and Tanzania could do well by creating conditions for the growth of a thriving aquaculture industry. Of course, the ocean is right there, too.

⁵² World Trade, "Observatory of Economic Complexity", Harvard/MIT, 2014

5.4.2 Soybeans

Global trade in soybeans is the largest of all trade in vegetable products, valued at US\$ 58.9 billion. Global trade in soybean meal is another US\$ 32.7 billion, and that in soybean oil is yet another US\$ 9.38 billion. This latter one is an edible oil, of which we have a major shortage domestically. This is a potentially enormous opportunity for Tanzania.

Soybean is grown in countries around the world with similar environments to Tanzania's so it can be easily adapted. It has vast agricultural and industrial potential in Tanzania. The animal husbandry business (cattle, chicken, fish farming, piggeries, etc) cannot be sustained profitably if Tanzania continues to rely on expensive imports for animal feed whose main base is soya. We must move quickly to roll out soya farms in parts of the country where soils naturally support its growth and bring prosperity to farmers in those areas. With increased production will come industries that will process and add value to soya and other agri-products. This will greatly benefit nutrition of both humans and animals, agri-industries and foreign exchange savings.

5.4.3 Palm Oil, Sunflower Oil, Cotton-seed Oil

Palm oil is our largest vegetable product import, at US\$ 354 million, and the global market stands at US\$ 35.4 billion, so to save us foreign currency as well as to potentially become a major player in the world, we need to focus here. As for edible oils, soybean oil as mentioned above is a good market to enter, as is sunflower oil, of which there is a US\$ 10.1 billion global market, and of which we import US\$ 8 million, too large an amount for something we produce domestically. Given a global demand of only US\$ 368 million in groundnut oil and US\$ 166 million in cottonseed oil, we discourage the government from focusing on these edible oils, as there is very little scope for growth.

The bulk of edible oil consumed in Tanzania is imported from the Far East (Malaysian and Indonesian palm oil) in the form of contaminated refined palm oil that is disguised as crude for purposes of benefitting from the import tax arrangements that favour importers, but punish local oil seed farmers and industrial producers. Tanzania has the capacity to produce enough palm oil, sunflower oil, soybean oil and cotton seed oil to satisfy domestic demand and leave excess for export, but lack of strategic thinking and lack of economic patriotism has stunted this potentially huge industry.

5.4.4 Sugar: The Sleeping Giant

Importation of US\$ 300 million (possibly much more) worth of sugar in a country that abounds with domestic production potential should not be happening. Official statistics show that only US\$ 62.6 million worth of sugar

was imported into the country last year, but we have reason to believe that the actual domestic sugar market size is in the region of 800,000 -1,000,000 metric tons. With local production peaking at 300,000 metric tons, the balance of 500,000 -700,000 metric tons is imported into the country by the sugar import cartels and a big chunk of this is not reported to the authorities. With the US\$ 120 billion global sugar market (for raw and confectionery sugar combined), sugar industries should be a focus for Tanzania's industrialisation project.

If a small country such as Zambia can produce 420,000 tons of sugar per annum (domestic consumption is 280,000 tons for a population of 15 million) with one plant—Zambia Sugar Co—Tanzania can surely do so much better because of its superior soils, abundance of land and a domestic market that is three times bigger than Zambia. Existing industries such as Kagera, Mtibwa, Kilombero and TPC can more than quadruple their productive capacities over the next five years, if sugar importation is controlled to allow these essential industries to grow. Based on Zambia's per capita sugar consumption (18 kg/capita/annum), which should be similar to Tanzania's (currently said to be 9kg/capita/annum),⁵³ it is evident that the sugar market demand in Tanzania is no less than 1 million tons per year, or in other words, a US\$ 600 million industry with vast export potential. Additionally, the sugar industry employs a large number of people, and is capable of producing its own electricity and supplying excess energy production to the grids.

5.4.5 Wheat and Rice at Industrial Scale

With imports into Tanzania worth US\$ 247 million, and another US\$ 28 million of imports in wheat flours, and a large domestic consumption, we need to figure out the possibility of domestic production or replacement with another cereal grain. Similarly, we should not be importing US\$ 26.4 million in rice, a staple food for many.

5.4.6 Mass Consumer Goods

As mentioned previously, Tanzania imports a surprisingly large value of simple mass products such as toilet paper, furniture, plastic lids, soap, cleaning products, and others, all of which could be produced domestically in large scales.

5.5 Construction Industry and Materials

In 2014, construction had the fastest growth of all sectors, at 15.5 per cent, and contributing 14 per cent of the GDP; it is no small sector.⁵⁴ The massive construction of roads, buildings, rail, ports and power plants among others

⁵³ According to the Sugar Board of Tanzania, total sugar demand in the country was 450,000 tons per annum as of 2015. This figure is manifestly wrong and explains why government policy towards the development of the sugar industry has been unhelpful for many years.

⁵⁴ "Tanzania Country Profile", Economic Commission for Africa, 2016

will continue for decades, and for sustainable growth in infrastructure and the economy, we cannot continue to have 70 per cent of the value of construction in Tanzania being done by foreign companies.

A robust domestic construction industry is key for Tanzania's long-term growth because:

1. It has steep growth and learning curves in technological and organisational capabilities.
2. It has tremendous spillover effects into the economy, particularly in organisational capabilities among the people (i.e., large-scale, high-quality construction requires a very high calibre of the aforementioned technological and organisational capabilities). For example, an excavator or grader would be of little use in dairy farming. However, through exposure to construction and all the activities it entails, people become better and more effective at creating and operating in larger, more complex organisations, and they become more and more well-versed in the ins and outs of the creation, operation and maintenance of different and more advanced technologies; these advanced organisational skills and working practices can easily be transferred into the dairy industry or any other industry, for that matter; organisational capabilities are therefore extremely important for national growth, but often neglected, even by FYDP II, which focuses on technological capabilities alone.
3. It provides large opportunities for backward integration and local content growth; for example, through providing a boost to potential manufacturers of Tanzanian machines used in construction. With WTO rules, local contents for foreign investors are now heavily restricted, and it would be near impossible to get a Chinese construction company to buy a Tanzanian machine, which is bound to be more expensive in the beginning, but would get cheaper with economies of scale. However, this could be required of a Tanzanian construction company (plus, foreign contractors almost always ensure they bring all major inputs from their own countries).
4. It will simply be too expensive in the long run to have foreigners come and build everything for us. The Chinese can build, for example, one power plant, or two, or three, in the short run, but if we are to grow from 1.5GW now to, say, 20GW, 15 years from now, we simply cannot have them continuing to build everything for us.

Construction may be the most similar industry to the manufacturing industry, from the above-mentioned qualities, and from the large-scale production of a physical good for public use, and it is therefore no surprise that a build-up in domestic manufacturing and construction industries forms the bedrock of an industrial economy.

Since no large Tanzanian firms exist currently, consolidation of and/or collaboration between firms will be required, as President Magufuli mentioned in a recent speech to contractors.⁵⁵ The state must heavily support and nurture local construction companies, not simply by asking them to pull up their socks, but by deliberately giving them public works contracts to implement and create facilities for these companies to access low-cost finance. FYPD II mentions assisting with access to equipment and skills development, but the state must do more, especially since foreign behemoth companies will be too difficult to compete against, even if there is easier access to equipment and skills development. We must invest tremendously in the training of engineers, technicians and construction workers of every level, and place them in apprentice-like training, in collaboration with domestic/foreign construction companies.

We must allow local companies to try and fail, too, because this is how they will learn. We cannot dwell in the mindset that foreign companies will always do a better job. We must ensure local consortiums receive major contracts or are partnered up in joint ventures with foreign companies, even if it costs more for the state in the short term. In the long term, it will be more than worth the investment. All industrialised countries have done this, a famous example being of the US, in the late 1800s, which restricted the import of cheap British steel and contractors for its railways construction project, and gave more opportunities to local contractors and producers of railroad tracks at a much higher cost to the state, but which ensured a build-up of American construction and steel companies, benefitting the state much more in the long term.

Production of construction materials as an industry itself is similarly important, and one that should be focused upon. Expansion of cement production for domestic use and export is among the most important here, along with the iron and steel metal products (used in construction) discussed above.

It should also be noted that construction will continue to boom all across Africa for the next few decades, and outside of South Africa, there are few large, sophisticated construction companies. This is another area in which Tanzania can become a provider for the continent.

⁵⁵ Rose Athumani, "State Supports Local Contractors", *Daily News*, 2016

5.6 Solar and Other Renewable Energy Industries

As discussed previously, Tanzania – and Africa in general – faces a massive shortage of electricity generation capacity. It is estimated that Tanzania will have a population of about 70 million people or 14 million households by the year 2025. Of these, 70 per cent (9.8 million households) will have no access to electricity, if we continue investing the same way we have invested in the energy sector since independence.

If we aim to provide each rural household a minimum of 100-200W of solar powered electricity by 2025, we would be adding 1,000-2,000 MW of solar power to Tanzania's energy pool. This, in itself, is a tremendous business opportunity. However, as we talk here of industrialisation, we should go beyond simply importing solar panels and systems for installation, and instead, we should attempt to manufacture everything locally. The solar energy industry products are many, including: the panels and all the materials constituted therein, balance of systems (the metal bars/system holding the panels), batteries, the new generation of low energy consuming home appliances (TVs, fridges, irons, mobile phone charging systems, kettles, cookers, water pumps, heaters, etc), wiring, and more.

If we assume that the average household system grows to 1,000W by 2050, and that the number of households in Africa using these systems grows to 350 million (70 per cent * 2.5 billion population in 2050/5 individuals), this means that a tremendous 350 GW of solar generation capacity will be installed by 2050 across Africa (by comparison, the current total generation capacity in sub-Saharan Africa, outside of South Africa, is 44 GW). Along with all the balance of systems, batteries and associated appliances, this is a mind-boggling market opportunity.

When discussing solar energy, we usually discuss its potentially transformative impact through the access to electricity it can provide to millions of people, who would otherwise not have this access, its environmental sustainability, and long-term cheapness (since the sun is essentially a free source of energy), etc. However, we as a nation need to broaden our thinking and consider solar energy as an industrial value chain, in which we can become global leaders, not just in installing, but also, more importantly, in manufacturing of all solar products. As demonstrated above, since the market is tremendous, the business and employment creation opportunity unmatched, and its impact on society and the environment overwhelmingly positive, the solar industry, if exploited strategically, can become the engine of Tanzania's industrial revolution and economic transformation.

Tanzania should seek strategic partnerships with owners of IP and renewable technology industries (solar, biomass, solar panels, Li-Ion

batteries for electric cars, etc) with the long-term view of making Tanzania the renewable energy capital of the world. Strategic government investments in resource mining (graphite), capacity building, technology transfer, innovation and patenting of new renewable energy technologies will ensure Tanzania becomes not only a leading user of solar energy, but also a significant player in the energy markets of the future.

5.7 Lithium-ion Batteries and Electric Car Industries

Significant reserves of the type of graphite flakes used in the manufacture of Lithium-ion batteries used in e-cars have been discovered in Tanzania. We should endeavour not simply to extract and export flake graphite in raw form, but more importantly, to process it locally and sell the value-added product such as Lithium-ion batteries, to e-car manufacturers while developing a domestic industry for e-car production.

5.8 Mineral Processing and Other Value-adding Industrial Activities

Tanzania is exceptionally endowed with minerals, including, but not limited to:

- Gold (currently 4th biggest producer in Africa)
- Copper
- Platinum
- Tanzanite (only producer in the world)
- Gemstones
- Nickel
- Tin
- Iron ore
- Uranium
- Graphite (potentially one of the world's biggest reserves)
- Natural gas (over 65 tcf commercial reserves confirmed by Dec 2015)
- Oil

Despite this enormous wealth, Tanzania exports almost all of its minerals in raw form, which exposes the country's export revenues to the hazards of global commodity markets volatility and denies the country hundreds of thousands of jobs in value adding industries, jobs that are created elsewhere

in foreign countries by our minerals. Below are a few examples of the value addition potential of Tanzanian minerals:

5.8.1 Tanzanite – Example

Tanzanite (a precious stone 1,000 times more rare than diamond, found exclusively in Tanzania) is another missed opportunity in terms of value addition. India has benefited greatly from Tanzania's inability to process and add value to tanzanite stones. The famous jewelry producing state of Jaipur in India ranks today as the biggest exporter of finished tanzanite products in the world with exports valued at US\$ 60-70 million per annum. Fourteen years ago (2003), the Tanzania government banned the export of raw tanzanite weighing more than 0.5 gram to India in the hope that the ban alone would spur the establishment of a processing plant in the country. This sadly has not happened and tanzanite stones continue to be cut and polished in Jaipur.

At its peak, tanzanite mining was providing direct employment to 14,000 Tanzanians. Most of these are low quality jobs in tough conditions underground. Many more high quality jobs can be created if the processing of tanzanite is localised in Tanzania, among many other strategic benefits that would accrue to the country. It is clear that the ban on exports of tanzanite has not led to increased value addition; on the contrary, more tanzanite is being smuggled out of the country now than ever before.

5.8.2 Gold – Example

Although gold mining has been carried out in Tanzania for more than 120 years, little has been achieved by way of value addition. Instead, non-gold producing countries such as the UAE have emerged as global value-addition and trading centres for gold produced elsewhere, mostly in African countries such as Tanzania, Sudan, Mali, Ghana, DRC and Niger.

A recent ban by President John P. Magufuli's government on the export of mining ore containing gold, copper and other metals also aims to make sure value addition on this important product is done locally. However, the failed tanzanite exports ban should serve as an important lesson as we search for a more sustainable solution to this vexing problem.

5.8.3 Going Further in Mining

It is our considered opinion that value addition industries for mining products will not rise as a result of export bans alone. Private sector capital views the industry as extremely risky, especially given the unstable power situation, absence of vital skills, non-existence of supply industries (maintenance and support) and the perennial political risk associated with mining in Africa in general.

The government must, therefore, go further and lead the establishment of demonstration industries in this important economic sub-sector. A government owned gold refinery or one operated in partnership with private investors as a for-profit venture will ensure that we can get started in the near future. Special efforts must be made to train personnel who will work in these industries and make sure they become profitable and sustainable in the long term. Localisation of value addition without making sure the work is done by well-trained technically competent Tanzanians will not reap the full benefits of industrial value addition.

5.8.4 Positive Example of Natural Gas

Over the last decade, significant reserves of natural gas have been discovered off the Mtwara coast in Southern Tanzania. Natural gas was found onshore on the Songo Songo Island more than 40 years ago. Two gas pipelines transport the gas from Southern Tanzania to the industrial capital Dar es Salaam, where it is used to fuel power generation plants, as well as supply the energy needs of a few industries, and very soon some homes. The use of natural gas has significantly contributed to reducing our expenditure related to imported petroleum products and aiding the competitiveness of Tanzanian industries.

The government of Tanzania has agreed a deal with global Oil & Gas giants (Statoil of Norway and Shell of The Netherlands) to build a massive LNG plant that will process the natural gas extracted from the depth of the Indian Ocean and prepare it for transportation to export destinations around the world. Some of this gas is slated to be used in local petro-chemical industries such as fertiliser and plastics, among others. This seems to be a more sustainable path to take compared to what we have done with other minerals so far. As a matter of policy, local value addition should be an integral part of any mineral extraction value chain in Tanzania going forward.

Chapter 6

Tackling Tanzania's Human Resource Challenge

People development is key to the success of the industrialisation project. The main prerequisite for the success of the industrialisation project is the build-up of domestic individual and firm productive capabilities. For this to happen and for Tanzania to truly emerge as a modern industrialised nation, the most important thing that Tanzania must do is educate its population well, and to empower it play a decisive role in its emergence as an industrialised nation.

6.1 Path to the Recent Education Crisis

In a recent UNIDO meeting, a senior government official indicated that 80 per cent of Tanzania's 26 million person working population is unskilled. Furthermore, a study by the Association of Tanzania Employers (ATE) revealed that between 30-40 per cent of advertised jobs are not able to attract skilled personnel.

More than 95 per cent of university students in Tanzania are studying arts subjects, meaning that young and competent Tanzanians are not replacing aging and retiring engineers, technicians and doctors. One recent shocking finding is that Tanzania is educating 2.5 per cent tertiary students for every vocational education (artisan) student, meaning that the logic of education with a purpose has been turned on its head, producing almost three managers for one worker instead of one manager for 20-50 workers.

Figure 14: Percentage of Tanzanian firms reporting skills as a problem⁵⁶

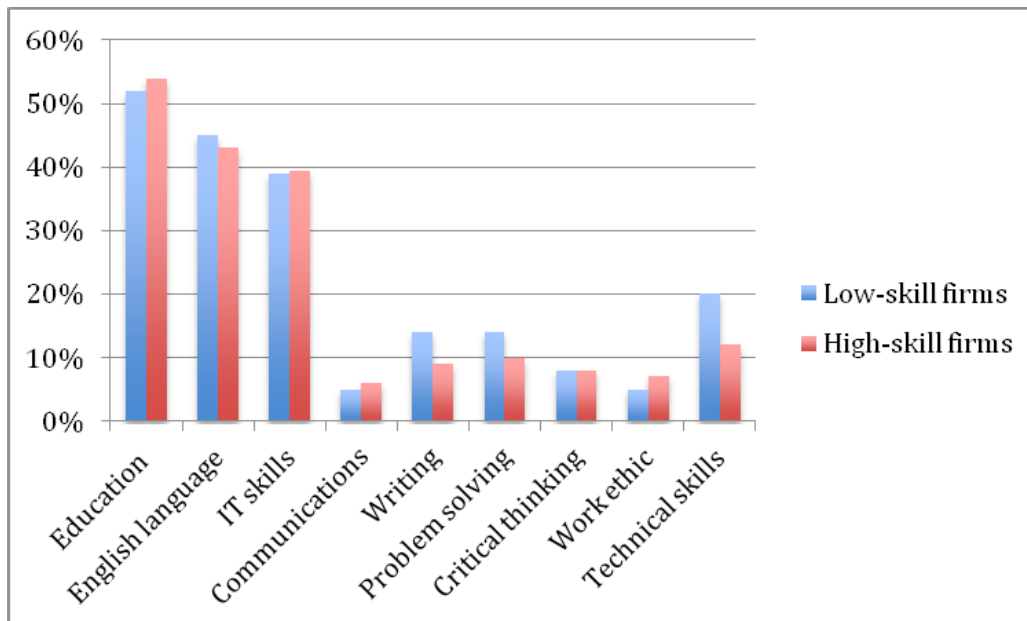
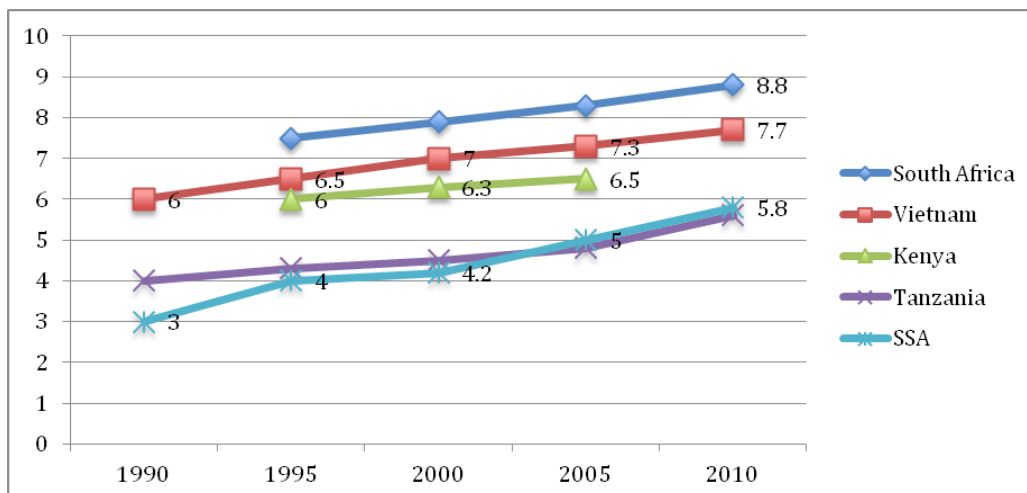


Figure 15: Average number of years of schooling for population 25 years and above⁵⁷



Tanzania, where 80 per cent of its population of 50 million is below the age of 35, is facing an education crisis of historic proportions. Speaking at a meeting hosted by the CEO Roundtable in early 2016, a senior officer of the Vocational Education and Training Authority (VETA) said that their centres routinely receive Form Four graduates (17-18 year olds) who cannot read and write in Swahili. Another senior official of the Ministry of Education, Science and Technology conceded that Tanzania may have lost at least one

⁵⁶ Hong Tan et al., "Tanzania Enterprise Skills Survey 2015", World Bank Group, 2015

⁵⁷ "Policy Research Working Paper 7672", World Bank Group, 2016

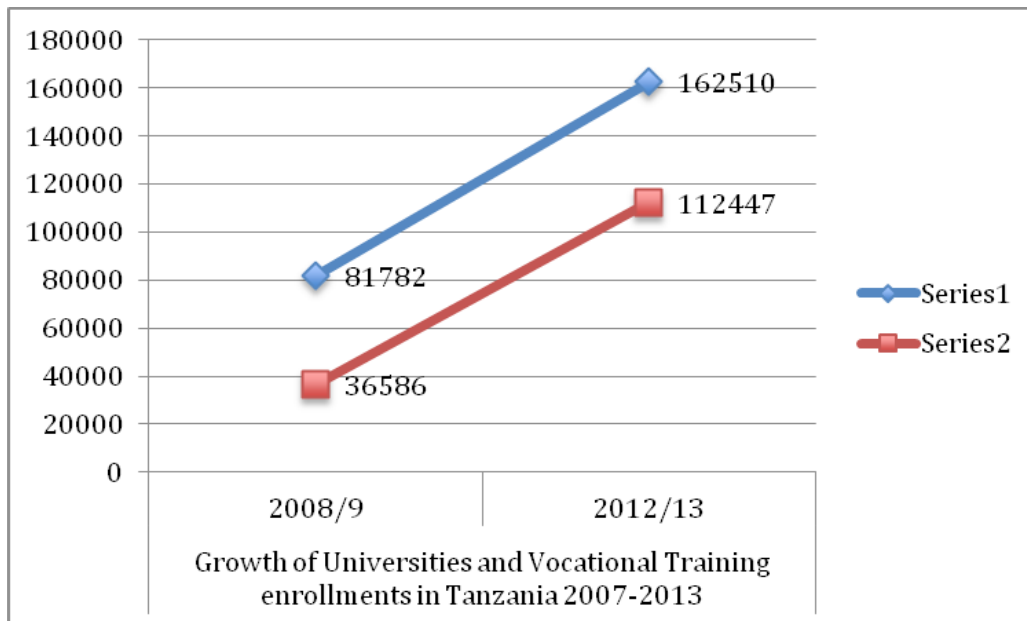
generation of its people due to substandard education over the last twenty to thirty years. CEOs at the same meeting complained about being unable to find even moderately competent recruits among the many graduates from local universities who show up for job interviews in their companies. Many cannot write a decent half page English essay. Worse still, these poorly educated university students are funded by the government through the Higher Education Students Loans Board (HESLB) in an education system where tertiary education is over-glorified and skills training looked down upon by society.

A perverse incentive created by government funding of tertiary education students has given rise to the rapid growth of the number of universities in the country over the last twenty years from 3 to 46. During the same period, the number of vocational education centres has stagnated, and in some cases, declined.

Since the elimination of tuition fees for primary public schools in 2002, there has been an increased number of children enrolled in primary schools. Currently there are about 10 million pupils enrolled in primary schools, but this increase has not been accompanied by a proportional increase in resources for teachers, classrooms and books. Neither do the skills dispensed and gained empower or prepare the pupils for a specific occupation. Additionally, under the current system, passing a primary education examination is not a requirement to continue with further education; rather, those who fail and many who actually pass are not selected to join a government secondary school (or vocational training) because of capacity constraints in these institutions. On the positive side, this has created a substantial market for private schools that cater to the economically privileged who wish for better school resources, but on the other hand, many private schools accommodate those who have failed and therefore not selected for government schools.

At secondary level, government schools have a standardised tuition fee charge of Tsh 20,000 per year. However, there are several other fees that are charged in addition to tuition such as, testing fees, caution fees, watchman contribution, academic contribution, furniture contribution, identity fee, emblem fee and fee for lunches, among others. To exacerbate the problem, the number of government secondary schools, which includes community or ward-based schools, has increased dramatically over the past few years, stretching scarce resources and teachers, compromising the quality of education offered. In the case of private secondary schools, due to lack of set standards, tuitions vary from approximately Tsh 500,000 to Tsh 32 million per annum. These private schools also attract the best-qualified teachers from public schools, leaving public schools with less competent teachers.

Figure 16: Growth of Tanzanian universities and VTC, 2007-2013⁵⁸

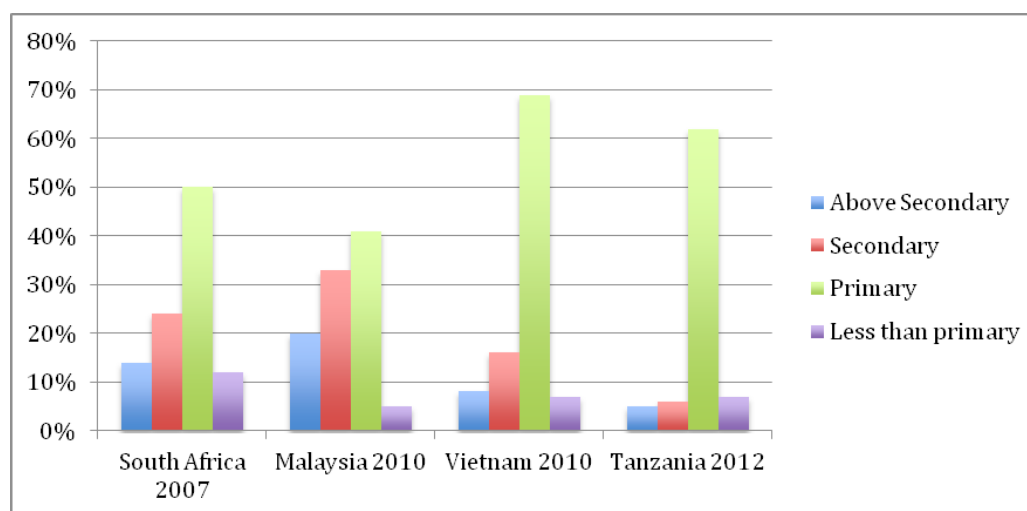


There are also challenges related to the language of instruction. By law, all secondary education must be taught in English (except the Kiswahili subject). Currently, only about 40 per cent of students sitting the primary education examination receive passing marks in English. Students who do not pass English examination could still attend school where English is the primary language of instruction, making the use of English in secondary school teaching controversial and less impactful in imparting knowledge and skills.

Furthermore, there are challenges related to administration of the education system. Under the PEDP (Primary Education Development Programme), the central government is responsible for the payment of teachers' salaries and the provision of instructional materials to schools. Local governments are responsible for the operational expenses and management of primary schools, while parents are responsible for the provision of basic learning materials. Local governments (with the support of the local communities) are responsible for the construction and maintenance of school buildings, but there are funds (known as the Development Grant) set aside under PEDP for the construction of classrooms, teachers' housing, toilets and the improvement of existing school buildings and facilities. Such lack of common standards or practice of managing our education makes it difficult to assign appropriate responsibility and accountability to parties involved.

⁵⁸ "Policy Research Working Paper 7672", World Bank Group, 2016

Figure 17: Education distribution of populations⁵⁹



At the higher education level, less than 3 per cent of our youth population enters colleges/universities and graduates. This, coupled with the general lack of vocational/technical studies, exposes Tanzania to a major shortage of the necessary specialised skills for different occupations, industries, activities and specialties required to propel economic transformation. The government decision through the Tanzania Commission for Universities (TCU) to lower the pass mark for entry into university, as well as simplify the licensing of private universities, has created a capacity for students who would not have entered university under normal circumstances. What is more, these students also have access to public funding through the HESLB.

From a funding perspective, the decision by the government to divert about 70 per cent of the skills development levy (SDL) from funding vocational education to HESLB aggravated the problem of skills training in the country, leaving VETA centres across the country with minimal funding and/or academic support. The HESLB also provided a perverse incentive for individuals and even public officials to convert their vocational institutions of learning into tertiary colleges in order to access HESLB funding. A large number of technical and skills development centres in the country were converted into universities in quick order over the past 12 years and granted licences to operate, leaving a significant gap in vocational and technical skills. More damaging, however, has been the rise in the popularity of university education at the expense of vocational and practical professional skills in the social eye, which has led to parents actively discouraging their skills-oriented children from pursuing what is viewed by society as inferior education.

⁵⁹ "Policy Research Working Paper 7672", World Bank Group, 2016

6.2 Poor Employability of Tanzanian Graduates

The 2014 Integrated Labour Force Survey for Tanzania revealed the following skill gaps or concerns:

1. Tanzanian employees generally have low levels or lack of soft or behavioural skills, which affect labour productivity negatively.
2. About 80 per cent of the occupations available, including occupations that will be in demand in the next 3 to 5 years, are based on science and mathematics-related subjects, while pass rates in Form IV and VI were lowest in mathematics and science-related subjects.
3. Another dimension of the skills gap is with regard to expectations of graduates, where, about 79 per cent of graduates aspire for wage employment upon completion of their basic training and only 17 per cent consider self-employment, clearly jeopardising the goal of promoting self-employment, despite the fact that only about 44 per cent of graduates get employed in a year.
4. There have been growing aspirations to acquire degrees or equivalent qualifications, and many institutions responsible for technical/vocational education have been converted into higher learning institutions with far-reaching implications on the balance of ratios between engineers, technicians, artisans and managers.
5. There are few skilled people in the lower to mid-level cadre of skilled labour, meaning that businesses invest significant resources to retool and retrain their workers or are sometimes forced to bring in foreign workers.

The current flood of substandard graduates that the country is facing has recently led to a ministerial order to expel thousands of students from several government universities on account of poor academic standards, and this is a direct result of some of these decisions. The accreditation system for universities has also faced serious criticism for allowing mediocre institutions to obtain operating licences. These are helpful steps, but it is important to recognise that it will take several decades of hard work for the nation to recover lost ground. There is, therefore, a need to learn from these mistakes and re-engineer/reform our education system to be fit for the 21st century where the majority of school graduates will not find 20th century style employment, but will have to create their own jobs or to be able to participate differently in the new economy. It is against this dire backdrop of the state of education and human resources that Tanzania is beginning its industrialisation journey.

6.3 Tanzania/Africa Could Have its Own Bill Gates, Albert Einstein, Jack Ma

Every year, international organisations based in the West, particularly the USA, offer scholarships to the top 20-30 Form 4 graduates in Tanzania. Similar efforts are made across many, if not all, African countries. These young boys and girls are put through a very intense academic programme at high school, after which they proceed to the best universities in the West. What is interesting about these children is that a great majority of them never return to Tanzania/Africa.

This means that our best and brightest, our potential Bill Gates, Albert Einstein and Jack Ma are systematically lured away every year by the promise of better education and a good life in the West, and are lost forever as far as Africa's development is concerned. As a nation that wishes to develop through industrialisation, Tanzania has no choice but to make sure that we don't lose the most gifted and talented of our people to other countries. We must identify them early, ideally during their primary school, and invest in their academic and personal development so that they are able to grow up and serve the nation.

There should, therefore, be special schools for unusually gifted children and a dedicated scholarship fund to ensure they get all the support they need to develop to their full potential for the benefit of current and future generations of Tanzanians.

6.4 Re-Engineering Education System for Socio-economic Transformation

Education and training are essential for socio-economic transformation. The quest for an appropriate education and skills development model/programme is spurred by the realisation that socio-economic development depends on the ability of educational, training and other institutions to deliver skills development and capability building programmes that are cognisant of the local and global context, and that address immediate and future societal, economic and industrial needs. On the other hand, decline in the quality of education has negative implications for human development and reduces the contribution of human capital to growth. Therefore, policies for inclusive access and improved quality education at all levels (i.e. early learning, basic education, vocational and technical, tertiary and higher education) need to be designed such that education becomes an effective means of developing and re-tooling human capital to transform the economy.

Experiences of industrialised countries such as Germany, Japan and South Korea, as well as emerging industrial giants such as Brazil, China and

India, have shown beyond doubt that a successful industrialisation exercise requires educated, healthy and competent human resources fit enough not only to work and drive infant industries. They must also have the wherewithal to carry out research and development into the future of technology and prepare the ground for the emergence of a more complex next generation of industries. It is also an established fact that competent human resources are a product of intense targeted training and practical exposure to the tasks and environmental challenges that the industrialisation endeavour itself entails. Such training is only possible if the following actions are taken:

1. Appropriate investment in education by the government through deliberate allocation of substantial budget resources to fund education for a sustained period of time, 50 years being the absolute minimum. India consistently prioritised budget allocations to education for the first 50 years of its independence before it could realise the impact that has made it a leading nation in terms of human capacity development, innovation, manufacturing, sciences, mathematics and space technology, among others.
2. Designing the education systems in the country to produce the right number and quality of trained personnel to work in the industries is being built and contemplated. For purposes of this document, we will call this “Fit for Purpose Education” or F4PE.
3. Crafting a mix of fiscal, social and educational policies and associated legislation that will sustain the F4PE project and assure its success over time, as we will show below.

Tanzania can overcome its human resource crisis if the leadership can marshal the courage to see the crisis in our education system for what it is and follow this up with a decision to implement the three actions stipulated above in a consistent and disciplined manner.

6.5 F4PE: Education with Many Paths to Tertiary Level and Employment

Our education system should be designed with intent to enable the country to progress into a modern industrialised economy, and under this system, our education system should be based on the following principles:

- There should be more than one way to access tertiary education, direct and roundabout.
- A university degree is an aspirational academic goal, but it is not the penultimate measure of success. People can have meaningful careers without ever having been to university. Tanzanian parents in particular

need to be educated about this fact. Practical skills and knowledge of doing things practically is more important and more profitable than the sheer mastery of the theory of those same things.

- Education is not an end in itself but a means to an end. It must, therefore, serve a purpose that is pertinent for the society at any point in time.

Based on these principles, we propose that our education system should have two different tracks to employment and three tiers to academic qualification:

6.5.1 The Employment Tracks

1. Direct to University (Pure Academic) Track
2. Artisan/Technician, Practical Education Track

6.5.2 The Qualification Tiers

1. Basic Education (primary 6-13 years of age, and secondary or vocational/technical/trade education, 14-17 years of age)
2. Intermediate (high school and technical college, 17-18 years of age)
3. Higher Education (university and technical master/supervisor school, 19-22 years)

The two tracks overlap during the first 7 years of schooling (primary school) and diverge from that point on, only to meet again at the point of entry into university if a technician chooses to pursue university education.

Basic education should be compulsory, universal and free for all children of up to O-level secondary school or Artisan certificate level at 17 years of age. This is easier said than done as it has significant budgetary implications for the nation. That is why there is an urgent need to review what we mean by free education. This concept of free basic education should, therefore, not preclude the possibility of financially able parents from contributing to the education of their children.

Within the basic education system/programmes, there should be a standardised system for public schools and private schools, the exception being for international schools, which should be defined as schools that deliver a curriculum in English from Grade 1 and have an international orientation. It is important that there be a standardised education system (i.e. basic requirements to be universally met by all public and private schools, such as, standards on quality of teaching), each age group of students to be on similar grades/classes, number of pupils per class or pupils per teacher, or students per textbook should be similar, latrines/toilets ratios, etc) so that the difference or variations between schools is limited.

The government would obviously not have the capability to accommodate all children who are due for basic education. There should continue to be a right to establish private schools that can be run by private individuals, organisations and/or religious groups. These schools should offer the same type of certificates as in public schools. They should provide similar academic standards and their syllabi should be the same as public schools'. Segregation of pupils according to the means of their parents or socio-economic classes should be discouraged.

The difference will be in special schools: these should serve children who have learning difficulties and those with special emotional needs. Teachers in these schools should be qualified professionals who are specialised in special-needs education in colleges or universities.

6.5.3 Pure Academic Track (Top 30% of Primary School Leavers)

The secondary education curriculum should include academic-oriented programmes. Key subjects should be basic mathematics, science (biology, chemistry and physics), social sciences (history, geography and civics), languages, as well as economics and finance studies. Ethics, problem solving, thrift and discipline should also be part of the curriculum. These subjects should be compulsory for all students going directly to university for pursuits of academic nature such as teaching, sciences, engineering, medicine, research, management, economics, etc.

Under this system, high school will be very competitive, with intensified focus on fewer subjects (specialisation) in preparation for entry to university. Admission should require the completion and passing of high school examinations with set minimum criteria and/or have successful completion of the apprenticeship programmes (with an addition of at least two years of work experience). Only the best should be allowed to proceed to university, and those who don't attain the pass mark in high school should be encouraged to switch back to enter the practical education track and graduate with an artisan certificate or technician's diploma.

This intervention requires and/or encourages higher learning institutions to have a strong focus on research. Students should also be encouraged to pursue on-the-job experience through internship semesters, which should be a mandatory component of the diploma or degree, so that students would have meaningful practical work/industrial experience before going out to seek their first job. With such a programme, students will be better trained in transferring knowledge and skills they have acquired into practice.

Higher learning institutions should also encourage executives who have extensive work experience in various professions and disciplines – gained from leading positions in companies and large entities – to teach at

universities, by volunteering or as part-time salaried work. This will enable a good combination of, and a balance between, the traditional university professorial teaching/research and lectures whose delivery will be from individuals who have extensive practical work experience and orientation.

6.5.4 Artisan/Technician, Practical Education Track (70% of Primary School Leavers)

After primary education, students with exceptionally good results (top 30 per cent) will proceed to secondary school and later higher learning studies through the academic track described above. The government's policy should be to target the remaining 70 per cent of the students to pursue a secondary education that combines light touch academics with a heavy component of industrial technical jobs skilling through apprenticeship and vocational/practical education. The apprenticeship system will be highly practice-oriented, where students are trained to become skilled workers in technical jobs, industrial production, trades, commerce and other services. Under this system, pupils will have an opportunity to prepare for a career with an apprenticeship in vocational schools (combining the current SIDO, VETA and JKT model, programmes and facilities).

During this 4-year period (age 14-17), attendance will be split between apprenticeship in practical work environments (75 per cent of the time) and time in classrooms where the theory relating to the various professions will be taught.

6.6 National Apprenticeship Programme

The Government is in the process of launching a National Apprenticeship Programme. It is our hope that this programme will require or encourage public and private companies to accommodate the apprentices in supervised practical learning programmes within their premises. Labour legislation should be modified to create opportunities for these young people to be part-time salaried employees of these industries and companies if their training contributes to commercial gains of the host industries and companies. This model has proven to be a great success in Germany, as we will demonstrate in the next few pages.

On the basis of the current situation, where low to mid-level specialised skills are in great demand in various industries and occupations, as well as the near-future need for industrialisation, the apprentice system should be exceptionally ambitious, big and bold, providing skills to adults and school leavers based on the variety of activities demanded by the current labour market. Courses should be structured in a manner that meets the demand of more specialised technical and economic activities. Subjects

can range (depending on the competitive and comparative advantage of specific locations) from commercial agriculture technology for specific crops to animal husbandry, timber and carpentry; skins, hides and leather technology; aquaculture technology; textile and apparel work; fisheries and fish processing; construction works and ICT, etc., as well as the accompanying social science skills in the areas of economics, finance, legal, management and entrepreneurship skills and ethics, etc. This system will also accommodate students who opted for high school education but failed to gain entrance into universities and colleges.

Upon completion, and passing the apprenticeship examinations, and being awarded a certificate/diploma, the graduate of this education track should be ready to start a career in a chosen industry or can proceed to further study, leading to a Full Technician Certificate or Trade Master Supervisor after a 2-year engagement in practical work or higher studies. Based on this proposition, and in order to accommodate the anticipated number of apprentice admissions where there exists a potentially large base of apprentice cadre, there will be a need to build more vocational training facilities. We may also make use of existing capacities in some high schools and government training facilities such as those under VETA, SIDO, JKT, prisons, etc.

6.6.1 Learning from Germany's Success with Apprenticeship

A Trade Master Supervisor Certification ('Meisterpruefungszeugnis' in German) is the minimum requirement for an individual to operate a business in a related technical skill such as automobile workshop, carpentry shop, construction sub-contractor, electrical shop, plumber, air conditioner shops, etc. Holders of this certificate, which is equivalent to the Full Technician's Diploma in the English system, can also join the low/middle management ranks in companies and industries or become masters of their own businesses.

Trade licensing regimes that require this kind of competence on the part of business owners/operators offer a powerful incentive for people to train and acquire essential technical skills as a matter of business necessity. It also encourages business owners to engage in continuous training and personal development, as well as pass on these skills to younger generations as a strategy for sustaining the competitiveness of their own industries.

SMEs in Germany are a key pillar of the famous apprenticeship system that has made Germany such an industrial success case. The SMEs serve as a formal training ground for young people who are selected to take the alternative route to professional career entry. These enterprises are formally involved in their training, supervision and certification, as well as curriculum development. The privately owned workshops and factories that provide

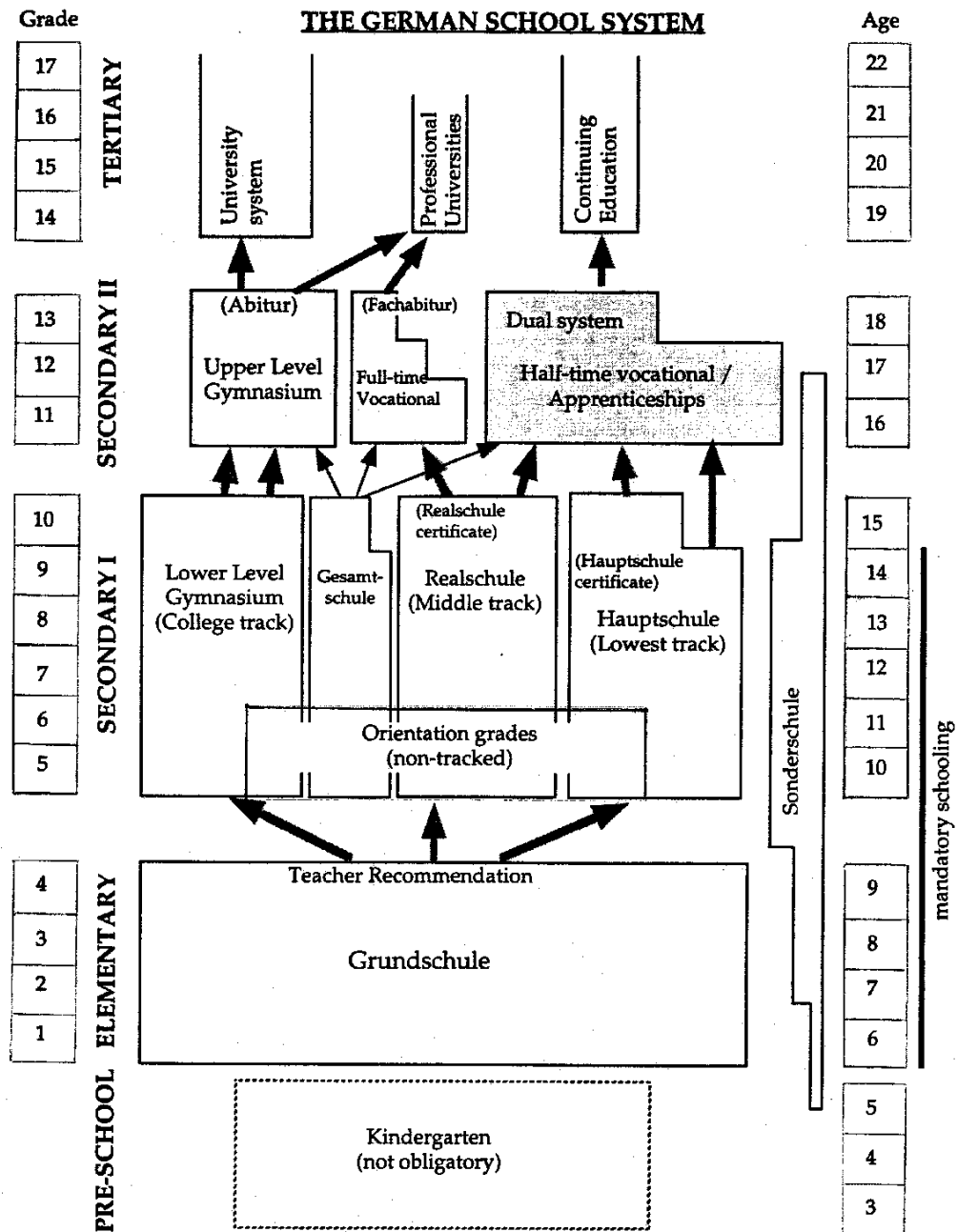
such training operate under the joint supervision of the relevant arms of government (ministry of education, labour, finance, etc) and the relevant private trade association (e.g. the Carpentry Guild, the Welders Guild, the Masons Guild, the Electrical and Electronics Technicians Association, The Hotel Keepers Association, etc). The resulting PPP spirit that has spawned innovation and extraordinary industrial achievement in Germany has so far not been achieved anywhere else in the world. The German system of multiple paths to career entry should be studied by African countries that wish to achieve success with their industrialisation projects. German Education Model: an example worth studying for Tanzania

By the age of ten, most pupils in Germany have been put on one of these three educational tracks. On page 69 is a detailed diagram showing the German model, which is almost perfectly set up to cater for modern economic, societal and industrial needs. The model takes into account the fact that not every student is set up to study heavy theory, to take up a research position at a university or a CEO role, that some prefer to apply their knowledge in a technical environment, while others prefer to work mostly with their hands in a vocational/artisanal role. Capabilities and interests of students vary dramatically, and to force everyone to follow the same track is like giving a national park full of elephants, lions, guinea fowls, fish and monkeys the same test of competence – one in which they have to climb a tree to pass.

Germany's educational system is a three-tier system that divides students into three different tracks based on their performance in early schooling. Primary school teachers observe the children's performance, interest and career inclination and make recommendations that categorise them in the following three groups:

1. The academically-gifted students headed for university/college on a direct path
2. Students headed for mid-tier and technical white-collar positions
3. Students headed for trades, crafts and blue-collar jobs

Figure 18: The German education system⁶⁰



Taken from MPI, 1994.

Tanzania has much to learn from the German model, as well as from the models of recently industrialising nations such as China, Vietnam and Malaysia.

⁶⁰ "An Overview of the German System of Education", Bloomsburg University, 1994

6.7 Singapore Education Model: Another Example Worth Considering

Singapore has transitioned from a poor, low-skilled state in the 1960s to one of the richest (per capita), highest-skilled states in the world today. Lee Kuan Yew, Singapore's Founding Father, realised early on that since Singapore had no natural resources, and had no other particular advantage, it could only rely on one thing: its people.⁶¹ From the early years, Lee Kuan Yew and his team strived to build a top-notch education system, and to make teaching the most respectable profession in the country (alongside being a public servant in the Singaporean government). On the backs of all buses was a banner stating, "Teachers are Nation-Builders".

Since then, Singapore has risen up the ranks of global human capital skill levels, and this clearly reflects in their socio-economic development. Singapore currently ranks second worldwide on the Programme for International Student Assessment (PISA), a global study by OECD of 15-year-old school students' performance in mathematics, science and reading. In 2015, a large delegation from the Harvard Graduate School of Education travelled to Singapore to learn from its system and successes, to draw lessons for Massachusetts (and the world), and they documented their learnings in *Fifteen Letters on Education in Singapore*, a must-read publication for Tanzanian education policy makers.⁶²

6.8 Kenyan Education Reform: A Neighbour Making Changes

Kenyans, too, have passed a bill to completely transform their education system from the traditional 8-4-4 to a new 6-3-3, which will put more emphasis on skills and problem solving as opposed to theory and examinations.^{63,64} This system will impart specialised skills at the secondary level, instead of waiting until higher education to do so. The breakdown is as such:

1. Shorter primary school (6 years): to equip the student with the basics of literacy (language), numeracy (mathematics), science and other basics of life.
2. Junior secondary school (3 years): to identify the potentials and talents of every learner, and based on career discussions among teachers, parents and learners, to agree on the kind of senior secondary school to pursue.

⁶¹ Lee Kuan Yew, "From Third World to First: The Singapore Story", 2000

⁶² Fernando Reimers et al., *Fifteen Letters on Education in Singapore*, 2015

⁶³ Ouma Wanzala, "Kenyan Root for Curriculum Focused on Imparting Skills in Learners", *Daily Nation*, 2016

⁶⁴ Emmanuel Manyasa, "Let's Not Rush New 2-6-3-3 Curriculum", *The Star*, 2016

3. Senior secondary school (3 years): to get students to specialise in one of three school options: academic secondary schools, technical and vocational secondary schools and talent secondary schools (for sports, music, theatre, etc).

6.9 Ashesi, ALU, ALA, Andela: Recent Successes in Africa

The past decade has seen the emergence of a few game-changing educational institutions across Africa. Ashesi University in Ghana is the first liberal arts and sciences university in Africa, and since its founding in 2002, it has come to be recognised as a leader in undergraduate education in Africa, performing at global standards. Its mission is “to educate a new generation of ethical and entrepreneurial leaders in Africa; to cultivate the critical thinking skills, the concern for others and the courage it will take to transform our continent.” Its students study one subject out of Business Administration, Management Information Systems, Computer Science, Electrical and Electronic Engineering, Computer Engineering or Mechanical Engineering, with a strong foundation on the liberal arts and sciences, and they are highly sought after across the continent.

Similarly, ALU (African Leadership University) is world-class tertiary education institution that is developing Africa's future leaders, and “by leveraging peer-to-peer learning, advances in technology, linkages to employers, real world project-based learning and a focus on skills development, we are building the ‘University of the Future’”. ALA (African Leadership Academy) is doing similar things, but at the high school level.

Andela takes a bit of a different approach: A statement on their website goes: “We recruit the most talented developers on the African continent, shape them into technical leaders and place them as full-time distributed team members with companies that range from Microsoft and IBM to dozens of high-growth start-ups. Backed by Chan Zuckerberg Initiative, GV (Google Ventures) and Spark Capital, Andela is building the next generation of global technology leaders.”

Ashesi, ALU, ALA, Andela, and many others, are making radical strides in education, and we should either bring these institutions (and others from other parts of the world) to Tanzania, or work with them to replicate their models in Tanzania. Either way, they have much to teach us, and we would be wise to learn from them.

6.10 Key Interventions for Tanzania

1. Develop an appropriate curriculum that addresses current and future industrial and occupational needs in line with the vision of the country, drawing lessons from educational systems of other nations.
2. Develop/improve facilities and teaching capabilities while similarly aligning teaching facilities and capabilities towards future needs.
3. Improve qualified teacher-student ratios at all levels.
4. Improve teaching and learning environment (classrooms, desks, textbooks, latrines/toilets ratios, boarding for girls, etc).
5. Consider the way our education is funded to allow for cost sharing by students and their parents, especially in higher learning education.
6. Improve working environment for teaching staff at all levels.
7. Extend ICT applicability at all levels of skills training and learning.
8. Promote employable skills, particularly for youth, women and people of special needs.
9. Direct skills levy to exclusively funding vocational and practical skills education.
10. Introduce by law a new Germany-style apprenticeship system that involves the private sector, technical schools and the government in preparing young people for a life of productive work in or out of formal employment.
11. Redirect young learners to taking STEM subjects in order to create a new body of technical and engineering professionals 15-20 years from now.
12. Create a Small Business Support Fund by the GOT (Government of Tanzania) to help co-fund and de-risk business innovations by young people. The private sector should be encouraged to provide the balance of funding for workable business ideas and innovations.
13. Establish a stricter enforcement of accreditation norms for all institutions of learning based on internationally acceptable standards.
14. Ensure a stricter enforcement of academic qualifications and standards of teaching professionals at all levels.
15. Reform our education systems to be more purposeful and oriented to serve the needs of our economy and not a blind pursuit of just any academic accomplishments.

6.11 Potential Impact/Outcome of the Transformation

We have analysed the projected outcome in the area of skills development as outlined in the FYDP-II 2015/16-2025/26 and we believe that the targeted projections are not ambitious enough on several aspects, and hence do not present a meaningful impact on the education and skills development required for sustainable industrialisation. We further believe that the suggested 'transformational' interventions we propose in this document, if implemented, will provide the significant opportunity to improve our education and skills development in key areas as shown in the table below:

Table 8: Proposal skill development education – Tanzania

S/N	Indicator/ Target	2014/15	2020/21	2025/26
	Tertiary Education			
	Tertiary gross enrolment rate (%)	3	5	10
	Annual number of students graduating from tertiary/higher education	40,000	100,000	150,000
	Of whom science and engineering students (%)	30	40	50
	Tertiary and higher learning students with access to student's loans	46	80	90
	Vocational Training			
	Average annual number of graduates from vocational schools	150,000	1,000,000	3,000,000
	Other Training			
	People with skills obtained through informal system learning for six priority sectors (annually)	20,000	200,000	1,000,000
	Internship training or graduates at work places (annually)	10,000	750,000	1,000,000
	Apprenticeship training for students at work places (annually)	1,000	300,000	1,000,000
	Skill Levels			
	Working population with high level skills (%)	4	12	20
	Working population with middle level skills (%)	17	35	70
	Improvement in satisfaction of employers with quality of local employees (%)	44	60	70

6.12 Education Funding, Private Sector Participation in Education

Tanzania is already allocating the highest share of its annual budget to education, meaning that the government recognises the importance of the sector, but has not paid attention to the value for money of every shilling invested in education. This must change immediately. Education must deliver tangible results in terms of impacting the productivity of the nation. The HESLB structure and mandate must be reviewed immediately, and the lopsided funding of tertiary education at the expense of skills training must be stopped immediately.

Emerging infant industries will require hundreds of thousands of skilled workers and fewer managers by comparison. More money should, therefore, be spent on skills training (technical, commercial and service skills). Tanzanians should be taught to take pride in practical education and skills that enable a person to work professionally with their hands in employment, in private business and in roles that are not necessarily managerial. No country has ever been built by managers alone. It takes a team of workers and managers to deliver success in an industrial environment.

Innovative modalities should be created to involve the private sector, especially in the planning, provision and funding of technical skills, borrowing from the very successful German education model.

Chapter 7

Infrastructure Development is Crucial for Industrialisation

As with education, infrastructure cuts across the entire economy and is a key enabler of all other initiatives. Infrastructure development has a ripple effect in employment creation, the domestic business environment, increasing our national competitiveness and attracting FDI among other benefits and it, therefore, has a direct impact on the nation's GDP. The interdependence and synergetic relationships between ports, roads, air travel and railway infrastructures, if well planned and executed, can be a significant factor in trade competitiveness, jobs creation and economic growth.

7.1 Tanzania's Transport and Logistics Systems

7.1.1 Ports

Tanzania, operating three ports on the Indian Ocean (Tanga, Dar es Salaam, Mtwara) was ranked 102nd in the 2015 World Economic Forum's (WEF) global competitiveness ratings among 140 countries, far behind Kenya (64th) and Ghana (79th). However, notable progress has been made in improving operational efficiency of ports, for instance, by extending operations of the Dar es Salaam Port from the previous 8 hours to 24 hours. The handling capacity also improved from 9.9 million tons (2011/12) to 14.6 million tons (2014/15). These improvements, however, remain insufficient to support economic transformation and industrialisation. Other challenging areas include management and operational inefficiencies and inadequate infrastructure, which constrain competitiveness of ports in Tanzania relative to ports in neighbouring countries such as Kenya. Improvement of the port operations both in volume and efficiency is key to making Dar es Salaam the port of choice for DR Congo, Rwanda, Burundi, Uganda, Zambia and Malawi.

According to FYDP II, a total of Tsh 48 trillion is budgeted for the construction of new ports and rehabilitation of existing ports across the country over the next few years. Tsh 22.3 trillion is planned for Bagamoyo

Port in Bagamoyo and Tsh 22.3 trillion for Mwambani Port in Kigombe, Tanga. The investment in the two ports represents 93 per cent of the investment planned for ports in the country under FYDP II. Dredging and expansion of the existing Dar es Salaam Port, as well as development of a container terminal, Birth 13-14, will cost Tsh 2 trillion.

The Eastern part of Africa on the Indian Ocean is a major shipping lane connecting Africa to Europe and Asia, and 90 per cent of Africa's imports and exports are conducted by sea. This potential has not been fully realised due to congestion and inefficiency in port handling and cargo management. With a coastline stretching 1,400 kilometres and having common borders with six landlocked countries (Uganda, Rwanda, Burundi, DRC, Zambia, Malawi), Tanzania can become a leading regional hub for export and import trade.

We recommend that the improvement of the Dar es Salaam Port, coupled with development of Tanga Port (serving Uganda and the recently signed Hoima-Tanga Crude Oil Pipeline) be prioritised for the FYDP II. If additional port infrastructure funds cannot be found soon, we consider temporarily shelving Bagamoyo Port as good and prudent economic planning.

7.1.2 Railway Network

Lack of investment in the nation's railway infrastructure has seen the railway network, which covers 14 out of the 26 regions, deteriorate over time. It was reported in early 2017 that the GOT had secured funding to build a standard gauge central corridor rail track connecting the port of Dar es Salaam with Mwanza, Kigoma and the neighbouring countries of Rwanda, Uganda, Burundi and DRC. Upon completion, this project will radically transform the economics of transportation and trade for the country and the region by cutting the cost of transport, transit times and growing trade cargo volumes being carried between the different connected trade hubs, as well as provide fast and cheap transportation for millions of people in the region. It will also vastly improve the viability of numerous industrial projects that have so far been made unviable by high cargo transit costs.

Development of the proposed railway network will help move heavy cargo loads from roads to rail transport, thus increasing the lifespan of the road network. Therefore, the emphasis on railway development goes a long way to prolong the life of our roads and most importantly reduce road accidents, which have been mostly attributed to heavy trucks and mass passenger movements.

7.1.3 Road Networks

Over the last three decades, investment in roads connectivity in Tanzania has been taking place at an impressive rate, though it is not yet sufficient.

The length of the road network (district, urban and feeder roads) is estimated at 130,000 km, comprising of 9,000 km (tarmac) and 121,000 km (unpaved) as at the end of 2016. This has been helped by the introduction of the Road Fund, a special fund created by law to be used exclusively for financing road construction and maintenance projects in the country. It is replenished by collections from a special fuel tax. There is still a lot of work to be done in connecting the entire country with a road network linking cities, towns and key areas of production activities. The condition of the roads network is not helped by the fact that most cargo is trucked because of the relative inactivity of the Tanzanian rail network. Continuous dependence on the road for goods transportation has resulted in high transportation costs as well as accelerated deterioration of the roads. Enormous infrastructure gaps persist, with the quality and quantity aspects lagging behind comparable peer countries (Malaysia, Vietnam and South Africa).

According to the FYDP II, the country plans to invest a total of Tsh 9.2 trillion in roads to improve the conditions and reduce traffic jams/congestion in cities such as Dar es Salaam. The plan to decongest the cities and link more urban areas to rural areas is commendable. The roads infrastructure should take into consideration designs for services such as drainage systems, services network for power, and voice and data connectivity. This is important to avoid roads being damaged when such services are included at a later stage while roads planners did not arrange for such. Improper drainage provision has led to damaging of many kilometres of roads, particularly during heavy rains. It should be noted that it is not only the length of the tarmacked road that is important, but also the quality and, hence, lifespan of the road itself. A phased approach is recommended in order to build better and longer-lasting roads. Bypasses should be introduced in all major cities and busy urban areas to decongest our cities and minimise costly and polluting traffic jams.

Solar traffic lights have been in use in some areas for quite some time now and have proven successful. The goal should be to make all traffic lighting solar-powered, so as to put to good use the abundant sunlight we have. This will help prevent a situation where some lights are off because of lack of electricity from the grid. Solar traffic lights should be the standard.

7.1.4 Airports and Air Travel

Tanzania has five international airports; that is, Dar es Salaam (JKNIA), Zanzibar, Kilimanjaro, Mwanza and Mbeya. The airports are capable of landing large planes in terms of the runway and parking/hangar areas. Improvement in hangars and passenger terminal facilities is urgently needed to open up the airports for more handling of passengers and traffic. There seems to be a desire in some quarters to build runways and parking/hangar

facilities, capable of landing large planes in all major cities and municipalities. This is not a good plan and can lead to wastage of the limited resources available for the implementation of this development plan.

Even very developed countries such as Germany, United States and the UK do not have airports capable of handling big aircraft in every major town/city. It is much more economical to ensure that the existing airports are connected to nearby towns and cities by good roads/highways and railway systems that can enable a traveller to reach the airport within, say, a maximum of 2-3 hours by road, or less by train. This way, the existing airports capacity will be more optimally utilised and the return on investment will be better. Small aircraft that would be servicing the regional hubs can serve smaller towns.

7.1.4.1 Low Cost Air Travel is an Opportunity Waiting to be Seized

At almost 900,000 square kilometres, Tanzania is a large country by surface area. Travelling by road from the southern town of Songea to the northern town of Mtukula near the border with Uganda is a 1,600 km journey that can take several days to cover, even with the excellent roads we have. Also due to its nature, air travel is expensive and has until recently remained the preserve of the rich and senior government officials. The innovation that resulted in the success of low cost air travel in the West over the last decade, however, is something that Africans (and Tanzanians in particular) should embrace and domesticate for local application. We need to move more people quickly and cost effectively.

7.2 Water Supply and Sanitation Services

Access to safe water in rural areas stands at 85 per cent, and in regional centres and Dar es Salaam, at 95 per cent. The proportion of rural households with improved sanitation facilities stands at 75 per cent, of regional centres, 50 per cent and of Dar es Salaam, 40 per cent. Government expenditure on water is 1 per cent of total government expenditure, and about 90 per cent of investment in water supply in the past years has been donor funded. The share of local funding needs to increase in order to provide emphasis and develop ownership of the investment, and to ensure participation of local contractors.

About 20 per cent of the world's fresh water is found in Tanzania (33 per cent of all the world's fresh water is in the Great Lakes region), and lakes alone cover about 7 per cent of Tanzania's land surface. On the borders, there are three African Great Lakes: Lake Victoria (the second largest lake in the world), Lake Tanganyika (one of the deepest lakes in the world), and Lake Nyasa; inland lakes include Lake Rukwa, Lake Eyasi and Lake Manyara.

There are nine major drainage basins in Tanzania, divided according to the recipient water body. The Lake Victoria basin drains into the Mediterranean Sea (through the Nile River basin). Draining to the Indian Ocean are the Pangani River basin, the Ruvu/Wami River basin, the Rufiji River basin, the Ruvuma River and Southern Coast basin and the Lake Nyasa basin. The Lake Tanganyika basin drains to the Atlantic Ocean through the Congo River basin. The internal drainage basin and the Lake Rukwa basin belong to the Rift Valley basin.

With all this endowment, there is plenty of water around the country that should be available to the entire population. According to the Food and Agriculture Organisation (FAO), in 2008, Tanzania had 96.27 km³ of renewable water resources per year (by comparison, estimated world water resources are in the order of 43,750 km³/year), which corresponds to 2,266 m³ per person per year. Water resources are, however, distributed unevenly, both in time and space. During the dry season, which usually lasts from June to October, even large rivers can dry up or experience substantial declines in flow. Some parts of the country receive, on average, up to 3,000 mm of rain per year, while other regions (such as the Dodoma Region or the Rift Valley) receive about 600 mm of rain.

Projections indicate that by 2025, Tanzania will experience water stress (defined as average per capita water resources below 1,500 m³) due to population growth and the resulting increase in consumption. As of 2002, water use for municipal water supply in mainland Tanzania was about 493 million m³/year, or 0.5 per cent of total renewable water resources.

The water-piping project from Lake Victoria to central Tanzania is a success story which should be replicated to cover other areas not yet reached and from other similar water bodies. Proper usage of water in all connected areas should be monitored and key usage indicators evaluated. For example, institutions that get free water should be metered to monitor usage, as those with free water supply tend to misuse the resource. Anyone misusing or using beyond the expected usage per head should be made to pay for the misuse. Water is life, and it is likely to be the cause of conflicts in the world among communities in the foreseeable future. Proper usage of water should be encouraged and enforced if necessary. Water supply from the central system should be designed in a way that most of it is supplied to consumers by gravity, in order to reduce the cost of supply and/or continuous dependence on pumping.

As proposed in the FYDP II, key interventions are:

1. Conservation and protection of water resources, water sources

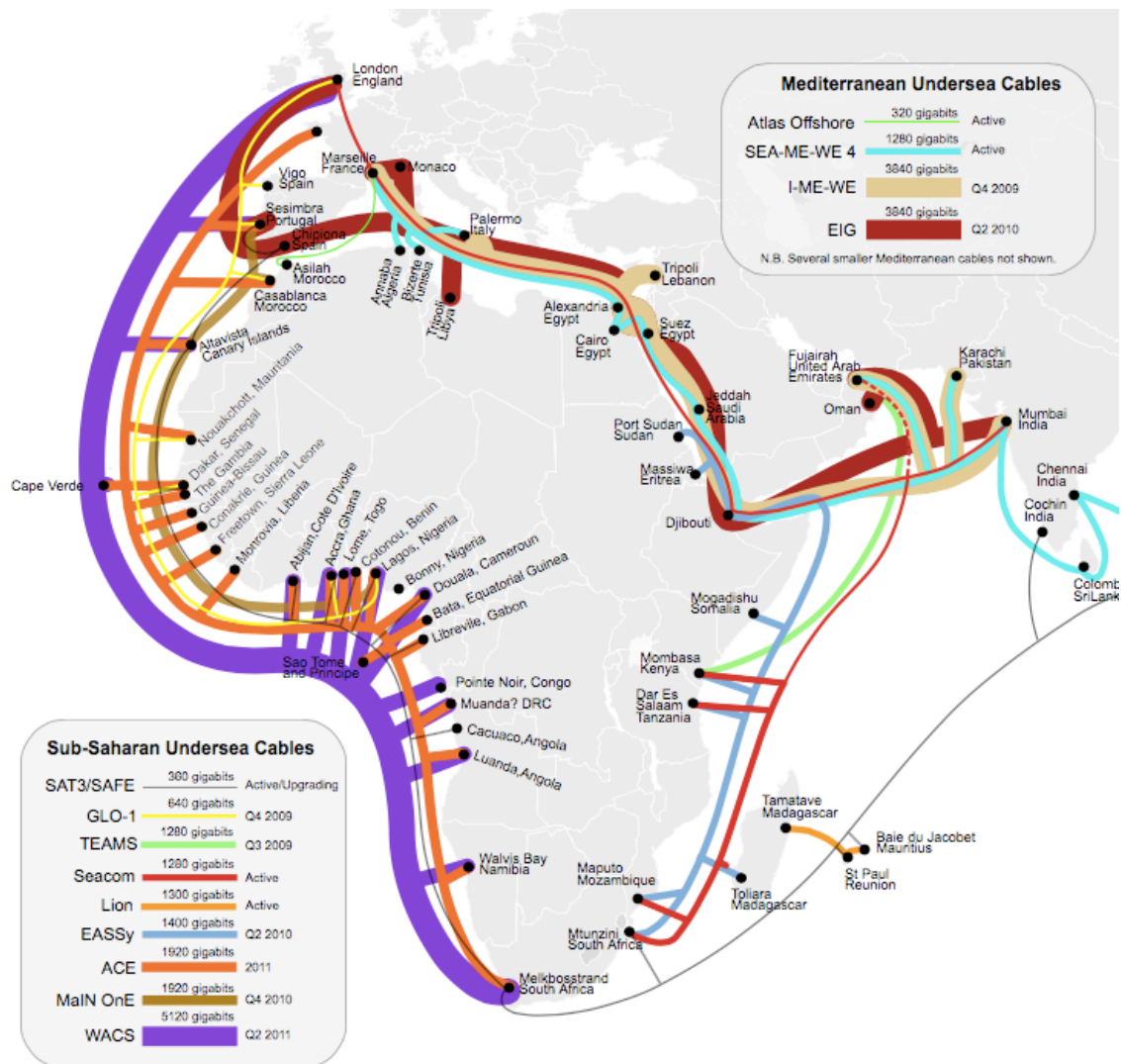
2. Construction of water harvesting infrastructure, including rain water harvesting, water dams, intake, storage, transmission pipes, distribution networks, water laboratories
3. Construction of sewerage treatment plants, storage, treatment ponds, sewer lines
4. Rehabilitation of water supply
5. Rehabilitation of sewerage infrastructure
6. Capacity building/skills development of staff at all levels of requirement (harvesting, transmission, distribution, billing)
7. Implementation of e-billing.

We observe with concern that FYDP II does not recognise the importance of ensuring adequate supply of water to industries. Tanzania Breweries LTD, the biggest taxpayer in the country for many years now, continues to spend a disproportionate amount of money and effort in securing water supplies for its production. The same problem afflicts major producers such as Bakhresa, beverage bottlers such as Pepsi and Coca Cola and many other industries. Also, lack of adequate supply of water to industries is a cause for increased pollution and poisoning of rivers and soil in the country. This needs to urgently change, because industrialisation will not succeed if manufacturers have to struggle to get water for their productive activities. It is, therefore, recommended that more public investments be made in ensuring that industrial areas are supplied with adequate water going forward.

7.3 Communication Infrastructure

Information is power, and information is the currency of the 21st century. Tanzania has completed the National ICT Infrastructure Backbone Project, laying 25,954 kilometres of optic fiber cable (OFC) backbone covering 24 regions of Mainland Tanzania. OFC provides a solid base for scaling up broadband access, connectivity and the provision of efficient services nationally and in the region, and ultimately provides 40 per cent of the communications services availed to landlocked countries in the region, as had been outlined in FYDP I. Connectivity to submarine cables (EASSy and SEACOM) and cross-border connectivity with neighbouring countries, namely Kenya, Uganda, Rwanda, Malawi, Burundi and Zambia, has been successfully implemented. However, limited education level and human resources to adapt, manage and operate new technologies, weak monitoring of quality and standards of hardware and software, lack of awareness and low usage of open source software are among the challenges facing the sector. Instances of vandalism on infrastructure have also been reported, though rarely.

Figure 19: Undersea cable infrastructure in Africa⁶⁵



The mobile telephone has revolutionised telephone connectivity in Africa and Tanzania in particular. While Tanzania had 161,100 fixed lines in use, ranking 133rd in the world (2011), there are nearly 40 million mobile phones currently registered by TCRA as being in active use in Tanzania today, at an 80 per cent penetration rate, and ranking 39th in the world (2015). A Very Small Aperture Terminal (VSAT) system is under construction, and mobile-cellular service, aided by multiple providers, is increasing rapidly and being modernised, with trunk service being provided by open-wire, microwave radio relay, tropospheric scatter, fiber-optic cable, and some links being made digital.

The mobile phone has now achieved the status of the “master identity” device. In many developing countries, the mobile number is now more important than the social security number. A comprehensive data bank

⁶⁵ WACS (West Africa Cable System), Wikipedia, 2016

should be developed around the telephone number. As a way to increase the tax base, each telephone number should be linked to a Tax Identification Number (TIN) and other aspects of personal biometric data. A phone that does not have a TIN number should be taken as an indication that one is not included in the tax base and, therefore, the state cannot adequately and accurately plan for his/her development and should charge a monthly mandatory tax of Tsh 1,000 until the situation is dealt with.

Where a TIN that shows that the taxpayer account had less than four transactions the previous year, the system should also trigger the Tsh 1,000 per month the next year. This will ensure that every adult person will pay at least Tsh 12,000/= per year as a minimum tax and the same will be collected over the mobile telephone. The government will not need to build any infrastructure or to incur any expense in order to collect this tax, which at a minimum today would be Tsh 360 billion a year!

Internet services have been available since 1995, but there was no international fiber connectivity available until 2009. Before then, connectivity to the rest of the world, including to neighbouring countries, was obtained using satellite networks. The SEACOM and the Eastern Africa Submarine Cable System submarine fiber cable projects were implemented in July 2009 and July 2010, respectively, and brought higher speed Internet connectivity to Tanzania with lower latency and lower cost. This resulted in more than an eight-fold improvement in download speeds from between 90 and 200 kbit/s in 2008 to between 1.5 and 1.8 Mbit/s in late 2009, with further improvements to between 3.6 and 4.2 Mbit/s in 2013. Current Internet statistics for Tanzania include:

- Internet users: 6.1 million users, 51st in the world; 13% of the population, 161st in the world (2012)
- Fixed broadband
- dd: 3,753 subscriptions, 164th in the world; less than 0.05 per cent of the population, 187th in the world (2012)
- Wireless broadband: 698,531 subscriptions, 81st in the world; 1.5 per cent of the population, 130th in the world (2012)
- Internet hosts: 26,074 hosts, 110th in the world (2012)
- Internet Protocol Addresses (IPv4): 846,152 addresses allocated as of 27 November 2014, 0.02 per cent of the world total, 17.9 addresses per 1,000 people (based on the 2014 population estimate of 47.4 million)

The laying out of fiber cable infrastructure across the country should be fast-tracked by using the existing TANESCO transmission and distribution lines (pylons and poles) and existing way leaves such as TRL and TAZARA,

gas pipelines, etc. As part of our industrialisation objective, we should set ourselves the following goals:

- New TANESCO distribution systems should include fiber cable as mandatory to prepare for Internet connectivity, and TANESCO can earn money by providing this service.
- Internet access should be increased and made a mandatory standard for all schools and homes.
- Every new home being constructed should have the infrastructure ready for Internet connectivity.

7.3.1 e-Commerce

Only few local websites recently began offering limited e-business services in Tanzania. However, these services are constrained by the lack of national payment systems, local credit cards and a legislative framework appropriate for e-business. These are constraints that need to be addressed urgently, and most significantly, the legal framework does not provide adequate safeguards to create an environment of trust for e-business transactions to take place. Consequently, financial institutions are not able to set up provisions for supporting e-transactions for their own and others' clients.⁶⁶

The target should be that all financial transactions in Tanzania be done through the bank, by debit/credit card and mobile-money. The government can encourage this by making it mandatory that all its transactions, such as those for business licences, NSSF, school fees, driver's licences and hospital bills are done cashless. We have to develop a cashless economy, which will increase financial services efficiency and lower transaction cost while ensuring financial inclusion of the entire population, as is currently being done in Rwanda. The example has been successfully set by the Dar es Salaam Traffic Police penalties payment, which is done by mobile-money. This can be done in phases, say, to be in full use by year 4-5 of the implementation, such that, by that time, every village will potentially have solar panels and, therefore, electricity will be available for charging mobile phones.

7.3.2 e-Government

Various arms of government have made significant progress in deploying ICT in e-government solutions. These solutions can be categorised into both e-government and e-governance solutions. In the category of e-government, several departments are transforming their operations by deploying ICT. However, no mechanisms exist for ensuring that these major initiatives are coordinated or developed within a holistic, strategic government plan. To make further progress and reap additional benefits, the government needs

⁶⁶ Annual Report, Tanzania Communication Regulatory Authority, 2015

to develop a comprehensive and holistic e-government strategy for urgent implementation. Not only will this enhance government productivity, but it will also enable the government, as a model user of ICT, to become a driving force for sustainable progress in the national ICT arena. The possibility of providing e-governance services depends upon the existence of an effective e-government infrastructure through which the public service can communicate internally and with the intended beneficiaries of its services.⁶⁷

The decision by the government, which was communicated by the Minister for Finance and Planning during his budget speech in June 2016, is commendable, as it made it official that communicating by e-mail and soft documentation is an acceptable and encouraged form of communication, a departure from the mandatory use of hard copy.

Government departments should introduce online systems for application of licences and permits. The following should take the lead and their benefits should be evaluated and thereafter replicated in other departments;

- Visa application for immigration department: this will enhance efficiency for visitors applying for a visa to visit our country. It can be a tool to increase the number of tourists, hence boosting income from the sector. An e-visa application system and electronic payment of the same ensures accountability of funds and enables us to generate various reports on sources of tourists, seasons and any other information and statistics which can be used for planning.
- Business licence application: online business licence application can go a long way to reducing the amount of time it takes to register a company. This is important in improving the ease of doing business in the country.
- Filing of tax returns: the Tanzania Revenue Authority (TRA) should embark on an online tax return filing system to ensure efficiency.
- Medical services: introduction of electronic data and information management in all government hospitals will help improve on patient data management and service delivery. Such software is in existence and in use in most private hospitals in the country.
- Police force: all data for cases reported, as well as criminal records, should be kept in electronic format for ease of use and references.
- Courts of law: it is high time that the judiciary goes electronic. Case files in the current manual/hard copy management are difficult to find and hence judiciary operations are cumbersome. This is a way to improve on delivery of justice to people.

⁶⁷ Annual Report, Tanzania Communication Regulatory Authority, 2015

7.4 Resolving Africa's Perennial Energy Crisis

The International Energy Agency (IEA) estimates that over 600 million people in sub-Saharan Africa lack reliable access to electricity. The region's energy resources are more than sufficient to meet the needs of its population, but they are largely under-developed.

7.4.1 Electricity Drives Industrial Growth

Electricity consumption per capita has a strong correlation with a nation's GDP per capita, both strongly influencing one another, as can be seen in the tables below.

Table 9: *Electricity per capita, kWh – Africa*⁶⁸

Country	2006-2010	2011-2015	GDP/Capita (\$) 2014
Egypt	1,706	1,700	3,199
Kenya	157	106	1,358
Ghana	341	346	1,442
Zambia	570	571	1,722
Tanzania	88	99	955
Sudan	142	157	1,876
South Africa	4,606	4,405	6,483
Senegal	199	210	1,067
Nigeria	149	156	3,203
Namibia	1,551	1,591	5,408

⁶⁸ "Electric Power Consumption (kWh per capita)", World Bank, 2015

Table 10: Electricity per capita, kWh – Asia/Middle East

Country	2006-2010	2011-2015	GDP/Capita (\$) 2014
China	3,298	3,475	7,590
Kuwait	15,552	15,722	43,595
Korea Republic	10,162	10,346	27,971
India	698	744	1,582
Japan	7,841	7,752	36,194
UAE	10,537	10,463	43,963
Singapore	8,657	8,690	56,285
Saudi Arabia	7,870	8,405	24,161
Qatar	15,800	16,183	96,732
Oman	5,929	6,093	19,310

Table 11: Electricity per capita, kWh – Europe/America

Country	2006-2010	2011-2015	GDP/Capita (\$) 2014
Luxembourg	15,586	14,969	116,664
Italy	5,515	5,398	34,906
Iceland	52,374	53,203	50,005
Germany	7,146	7,270	47,822
France	7,216	7,344	42,733
UK	5,537	5,452	46,332
USA	13,240	12,954	54,630
Sweden	14,030	14,290	58,937
Poland	3,880	3,889	14,343
Norway	23,510	23,658	97,307

At current levels of available power, and if we continue down the same path of investing in energy production, Tanzania cannot achieve her development target, as changes in social and economic realities will rely on the availability of vast amounts of energy and particularly on energy surplus. Energy is the economy. It is the master resource and Tanzania has no alternative, but to find new sources of energy to drive its industrial project.

7.5 Tanzania and Africa Must Take a Different Path to Energy Self-sufficiency

Currently, only a small portion of energy use in Tanzania (about 5 per cent) is in the form of electricity. Electric power generation in Tanzania is estimated at 1,400 MW, representing electricity consumption per capita of just about 100 kWh per year, for a country of 47 million people and per capita GDP of US\$ 900. This compares poorly with Spain, which like Tanzania has a population of 47 million but generates 5,400 kWh/capita and has a GDP per capita of US\$ 30,000 (or 30 times that of Tanzania!). According to Vision 2025 and the stated overarching goal of the FYDP II of attaining 100 per cent electricity access for all households by the year 2030, Tanzania aspires to achieve middle-income status (US\$ 3,000 income per capita or in energy terms 3,200 kWh of electricity per capita) by the year 2025.

This would mean an increase of more than 40 times of generating capacity from 1,400 MW currently to 58,000 MW, accounting for population increases to around 65 million by the year 2025. The associated investment cost, based on the rule of thumb figure of US\$ 1m per MW (on the lower end) for conventional energy generations systems (natural gas, fossil fuel powered engines, etc), would make the investment needed to achieve this feat in ten years nearly US\$ 60 billion or 120 per cent of our current GDP, which is equivalent to energy investments of 12 per cent of GDP every year! This is a sheer impossibility, meaning we must urgently search for cheaper alternative ways of delivering electricity to meet the productive and social needs of the growing population of Tanzanians.

7.5.1 Solar Power is the Answer

Solar power is not only plentiful in our part of the world but it is also technically free of charge and environmentally sustainable. Hence, the path to our goal of full electrification of Tanzanian households is made substantially easier, cheaper, environmentally safer and attainable in our lifetime. If well exploited therefore, solar energy as an industry can be Tanzania's 21st century equivalent of the steam engine and textile mills of the industrial revolution.

Use of solar power will keep the environment safe. By embracing its benefits and crafting policies to encourage its use while making sure that extremely poor people are not left behind, Tanzania has the unique opportunity of becoming the world leader in the use of sustainable energy, environmental protection and growing its economy at fantastic rates.

7.5.2 100 Per cent Electrification of the Country by 2025 is Possible

It is estimated that Tanzania will have a population of about 65 million people or 13 million households by the year 2025. Of these, 70 per cent (9.1 million households) will have no access to electricity if we continue investing the same way we have invested in the energy sector since independence. The 9.1 million households, however, present both a problem and a great development opportunity.

We must choose the opportunity and aim to add 1,500-2,000 MW of solar power to Tanzania's energy pool by 2025. That would be enough to give each of these rural households a minimum of 150-200W of solar powered electricity that can light up a home, a school, a health centre, power a new generation of low energy consuming home appliances (TV, fridge, irons, kettles and even cookers, water pumps, welding machines and heaters), power telecom networks and transform the lives of millions of Tanzanians.

We can achieve this through an investment of US\$ 1.5-2 billion a year over the next ten years, and private sector investors can provide a bulk of that money, with government stepping in only to provide subsidies to extremely poor families that cannot afford the cheapest solar kits.

Tanzania's noble but extremely expensive Rural Electrification initiative (in terms of dollars spent on connecting one user/household to the grid) can re-engineer its business model and strategy by tapping into renewables as sources of energy instead of spending so much money building expensive grids that cannot be energised for most of the day.

7.5.3 A Two-Pronged Electrification Strategy to Make Industrialisation Viable

With that rural (rural residential) energy need taken care of by solar, mini-hydros, biomass and other forms of cheap renewable energy sources including wind, the government can direct its investment dollars to what we call "Industrial Power", the kind that will be consumed by industries and cities. The proposed FYDP II has a target of increasing supply by 3,500 MW by 2025, but with solar, it is possible to raise this number to 5,500 MW. It can be achieved more cheaply, more efficiently and more sustainably if we adopt the two-pronged (Domestic Power/Industrial Power) strategy to guide our investments in the sector.

7.5.4 Unbundling TANESCO Will Unleash Tanzania's Energy Sector

Kenya and Uganda unbundled their electricity monopolies and have managed to vastly cut costs for running the sector and increase access to electricity. It is high time the government took into serious consideration the unbundling of TANESCO into generating, transmitting and distributing entities that would

operate independently. This will not only reduce the burden on government finances that TANESCO has become for many years now; it will also vastly improve service quality and access, as we have seen in other countries that have unbundled their monopolies. Overall, it is important that certain sections resulting from the unbundling remain in government control, and that the private sector involvement is limited to where necessary, especially as Independent Power Producers (IPPs). The energy sector is extremely important to national strategic interests, and as seen from success stories in East Asia, it is important to keep a large part of it under government control.

7.6 Industrialisation and Environmental Protection Are Not Mutually Exclusive

Some thinkers, economists and environmental activists have been cautioning Africa about the dangers of mass industrialisation, pointing to the destructive effects to the environment caused by industrial pollution, especially of toxic gas emissions and dangerous chemical waste that is drained into rivers and lakes by industrial activity. These are legitimate concerns but they ignore the simple fact that, without a viable alternative, the poor will always turn to the environment for salvation and in the process, cause damage as well.

While 50 per cent of the world population relies on fuelwood and charcoal for cooking and heating, sub-Saharan Africa is the only region in the world where the use of this polluting energy resource is increasing. Presently, 81 per cent of all households in sub-Saharan Africa use fuelwood and charcoal, and 60 per cent of them are in urban areas.⁶⁹ Statistics show that, today, humans are destroying 500,000 hectares of forest every year in Tanzania. The country had 33 million hectares of forest at independence fifty-five years ago. At this rate, a once green country will be reduced to a wasteland in less than 30 years.

It is without doubt that the biggest threat to the African environment and biodiversity does not come from pollution by nuclear disasters or industrial waste, but rather from the way we continue to live our lives today, the same way we did so many thousands of years ago.

Germany provides an excellent example of the fact that industrialisation and environmental protection are not contradictory endeavours. One hundred years ago, Germany's forest cover was 3 per cent. It was a poor, war-ravaged country and many of its people depended on wood for heating and cooking, hence causing the rapid depletion of their forests. Today, however, Germany is a leading industrial nation and its forest cover has grown to 35 per cent. Fishing on German rivers remains safe for human consumption and the

⁶⁹ "Statistics", Gro Intelligence Inc., 2015

many natural springs found across the country are a source of clean drinking water for its people.

It is clear that for people to be able to protect their environment and in particular the forests, wetlands and water bodies; they must have access to alternative energy sources other than fuelwood. This is only possible, however, if people command sufficient incomes to afford such alternatives. Incomes will only rise sustainably if nations industrialise and create jobs and better livelihoods for the masses of people that make up their populations.

Chapter 8

Financial Resources Mobilisation for Industrialisation

Capital formation is key to the success of the industrialisation project. In order to succeed, the national industrialisation and economic transformation strategy must be underpinned by transformative changes in our financial institutions, whereby the creation of indigenous systems of capital formation goes hand in hand with efforts to industrialise. We should, therefore, focus on creating a set of institutional factors and policy tools that will encourage and enable the culture of savings and capital formation in our country.

Tanzania's current domestic financial sector snapshot looks like this:

- Banks' balance sheet size: Tsh 25 trillion (25 per cent of GDP)
- Pension funds assets: Tsh 8 trillion (8 per cent of GDP)
- Market capitalisation for local listed companies: Tsh 8.5 trillion (8.5 per cent of GDP)
- Listed government bonds: over Tsh 5 trillion (5 per cent of GDP)
- Savings ratio: 20 per cent of GDP
- Investment rate: 30 per cent of GDP

The ratio of savings relative to GDP in Tanzania is far too low, even by the sub-Saharan Africa standard. We need to enhance the national capacity to mobilise financial resources. The way out of underdevelopment lies in raising the level of a nation's savings and capital formation.

8.1 Grow Local Savings Ratio from 20 per cent to 25 per cent of GDP by 2021

The total country's savings as a proportion of our GDP is 20 per cent per annum, while our investment rate per year is 30 per cent of GDP. We finance the gap using foreign sources of capital in the form of loans and grants. We need to gradually reduce this gap. This requires a cultural re-orientation as

a people and as a nation, from a cycle of *low savings and high consumption to high savings and high investment*. East Asian countries have done that very well during their industrialisation journeys – China reached a savings to GDP ratio 50 per cent and used its savings to fund industrial investments. Even other relatively poor countries such as Vietnam have attained a savings rate of 33 per cent.

In Tanzania, we should target a savings/GDP ratio of at least 25 per cent per annum in the next five years. At the current GDP of about Tsh 100 trillion and at the anticipated compounded growth rate of 7 per cent, this will translate into a movement from an annual savings quantum of Tsh 20 trillion (20 per cent of GDP) to about Tsh 35 or (25 per cent of GDP) trillion per annum by 2021, with GDP projected to be Tsh 140 trillion in current shillings. The government through the Central Bank and the Treasury can create monetary and fiscal policy tools that can encourage savings and eventually create a culture change in this area.

8.2 Attract More FDI to Build 21st Century Industries in Tanzania

As we consciously increase our capacity to save and improve capital formation in the short to medium term, we should aim to leverage our growing economy and the opportunity it offers to investors to bring in capital from foreign sources of funds (grants, FDIs, Diaspora investments and development finance). In 2015, FDI flow to Tanzania was about 3 per cent of the total FDIs to Africa. Our target should be between 5 per cent and 7 per cent. This will mean attracting between US\$ 3 billion to US\$ 5 billion per annum. We should encourage more FDIs to diversify the sources of finance for growing our economy. We should channel at least 70 per cent of FDI flow into FYDP II-related super priority projects (i.e., garments and textiles industries, agro-processing industries, solar energy, construction, fisheries, etc). Upon managing to make Tanzania an attractive investment destination (through smart policies, enhanced infrastructure, relatively good labour skills, etc), we should be able to increase FDI flow into our economy from the current Tsh 2.5 trillion per annum to about Tsh 11 trillion per annum by 2021 and Tsh 35 trillion cumulatively over a period of five years.

Once raised, foreign capital (via donor funds, concessionary and non-concessionary loans, FDIs, private equity funds, portfolio investors, etc) should consciously be utilised to gradually build our capital formation capabilities. We need to match the mobilised foreign funds with a clear intent to monitor, manage and prudently utilise funds raised from external sources. That is to say, having managed to attract foreign funds, we should aim to use the same for financing importation of capital goods, raw materials

and foreign technology that are to be used in manufacturing of goods under the industrialisation programme. There should be no squandering of foreign capital or use of the same for importation of unnecessary consumption items.

8.2.1 Issues to Consider While Seeking FDIs

Tanzania's known subterranean mineral resources alone (60+ tcf of natural gas reserves, substantial reserves of coal, gold, iron ore and most recently discovered, the type of graphite used in the manufacture of Lithium-ion batteries for electric cars, to mention only a few), combine to make Tanzania one of the wealthiest countries in the whole world, but only on paper and in theory.

For Tanzania to realise that wealth in real terms, it must find sustainable ways of taking those resources out of the ground, transforming them into globally competitive products, maximising value addition and using these resources for the benefit of its own domestic industries as priority off-takers. The challenge, however, is that this cannot be done without substantial amounts of FDI, human capability improvements and technologies that the country does not have at present. This is why it is important for policy makers to understand the forces behind the movement of global capital.

Experience has shown that there are two types of FDIs, namely

- Resources-seeking FDI
- Markets-seeking FDI

8.2.1.1 Resources-Seeking FDIs

Resources-seeking FDIs will flow to a destination at times of ideal global market conditions, such as high or rising global commodity prices, as was the case for resource-rich African countries during the past two decades. However, Tanzania as a country has no control over global commodity prices (see the effect of the recent sharp drop in the global oil prices on the takeoff of Tanzania's much anticipated natural gas industry). This kind of FDI will come in only if we agree to export resources in raw form in order to meet supply contract demands of the investing multinational corporations (MNCs). While this kind of FDI is capable of creating multi-billion dollar investments such as LNG plants, creating a few thousands of jobs over their life spans and contributing generously to the treasury in terms of taxes, levies and royalties, their transformative power is limited. Moreover, this type of FDI tends to reduce over time, eventually moving out when the resource is depleted or when global market conditions change.

8.2.1.2 Markets-Seeking FDI

This is the kind of FDI that seeks to build industries in order to corner lucrative markets that are otherwise complicated by distance, price competitiveness and trade barriers such as tax tariffs. For example, a company based in China or Brazil that produces goods for export to East Africa may wish to make a strategic decision of basing its manufacturing facilities in the EAC in order to take advantage of its 150 m+ strong market if being located on the ground in the EAC will amount to such an advantage over its competitors. Over the past few decades, with the globalisation of production value chains and advances in maritime trade, this kind of FDI now also makes investment decisions based on costs and conditions: the country that offers the lowest cost of labour and other production inputs (and with the required quality), along with favorable investment conditions and high-quality logistics and trade management, is the country that receives the FDI. This kind of FDI has the most potential for positively contributing to Tanzania's industrialisation effort, but the competition for it is very fierce and it comes at a significant social and political price. Moreover, it requires adjustments in policy and infrastructure build that many developing countries such as Tanzania can find challenging.

For example, in order to position itself as a global low-cost export manufacturing hub for leather and textile products, Ethiopia has invested heavily in energy plants that provide secure electricity to exporting industries at very low prices, it has introduced labour policies that allow employers in export zones to pay factory workers salaries as little as US\$ 40 per month, and it has negotiated trade deals with the likes of USA (under AGOA) and the EU in order to secure markets for its industries.

This is why Tanzania must adopt a strategy of smartly balancing the inflow of resource-seeking FDI (extractives, oil and gas, forestry products, agri-produce, etc) on the one hand that normally bring in large amounts of investment dollars but do not create many jobs, and markets-seeking FDI (light manufacturing such as garments, textiles, footwear, electronics assembly, paper industries, construction materials, agri-business and agri-processing, etc) on the other hand that initially come in smaller quantities of money, but if properly tapped, can flow in much larger quantities, create many jobs, bring in new technologies and build the capabilities of the nation over time.

Each type of FDI will require distinct strategies and efforts to get them onshore, and the policy implications for each can be significant. The idea is not to choose one type of FDI over the other, but rather to make conscious and informed decisions every time and to make sure the right expectations are set. Continuous monitoring of the local FDI needs against the constantly

evolving global economic environment should inform adjustments to local economic policies and public investments.

Markets-seeking FDIs must, therefore, be vigorously pursued, especially in countries where light manufacturing industries such as China, Malaysia and Brazil (garments, textiles, leather, electronics assembly, furniture, construction materials, etc) are looking for alternative locations. Tanzania should position itself to host these industries by leveraging its strategic geo-location, inexpensive and skilled workforce, trading blocs/pacts in which it has open market access (EAC, SADC, AGOA), competitive investment laws, high-quality infrastructure, competitive energy prices, domestic market size and stable macro-economics.

Resources-seeking FDIs must also be pursued with equal vigour, but with a clear understanding that resource industries are strategic long-term plays, and that resources ultimately get depleted. All efforts must be made to avoid the temptation of auctioning off valuable national assets to the highest bidder, especially at times when global commodity prices are in recession.

8.2.2 Local Versus Foreign-owned Industries is an Important Strategic Choice

Finally, there is the critical issue of tapping FDIs for local content in order to create the human capabilities needed to build and own industries because without them our industrial future will not be sustainable. Successful attraction of both types of FDIs will require an acceptance of the fact that foreign interests will own the first generation of new industries in Tanzania for a larger part. Tanzanians will use these industries as a place for learning how to operate, finance and own them when the time comes. The creation of a smart local content policy framework by the Tanzanian government will ensure that in less than two decades, most of the country's SMEs and some of the larger companies will be in the hands of indigenous Tanzanians. This is the ownership transition path that was successfully followed by all emergent countries of East Asia and Southeast Asia (China, Vietnam, Malaysia, Singapore, India) and South America (Brazil, Chile) during their industrialisation journey.

8.3 ODA as a Source of Financing

The global financing sources and global development finance dynamics are significantly changing. Many traditional donor countries hit by the 2007/8 global financial crisis are yet to recover, and domestic economic hardships in those countries have forced them to focus more inward and reduce spending on overseas aid. Western commitment to Overseas Development Assistance (ODA) has consistently fallen short of the 0.7 per cent promise. President

Trump's government has recently announced a massive reduction of US foreign aid and this is not expected to change anytime soon. Therefore, the development model centred on ODA and external debt has come under fresh scrutiny, and developing countries are advised to change to a framework that puts greater emphasis on the domestic markets resource mobilisation.

Our country needs to restructure and diversify its market-based sources of financing (i.e., there is a need to enhance our domestic resource mobilisation and execute policies that champion efficient resource allocations within the economy). Political leaders and financial institutions need to commit to this idea for the country to achieve sustainable industrialisation. Having said that, and as elaborated below, we will still need to continue to attract foreign capital wherever it can be found, especially through Foreign Direct Investments (FDIs). However, this should be with emphasis on moving from the model where most FDI money was directed almost exclusively towards natural resource exploration to one where the money equally goes to industrialisation and the infrastructure that will support its resilience. We have also emphasised the need to pursue public policies that will leverage diaspora remittances for industrialisation, regional industry and infrastructure funds, as well as leverage the wider financial resource base that emanates from the free trade regions in which we operate (EAC and SADC). The role of ODA and other forms of aid in industrialisation will continue to be important, especially in the areas of technical assistance, capacity building and advisory services.

8.4 Strategic Reconfiguration of Domestic Financial Resources

The process of capital formation requires us to consider key reforms and transformations in banking (that is, a good mix of commercial, investment and development banks) and capital markets. The government and private sector should champion introduction of financial instruments that will be used as investment platforms for mobilisation of investable funds; that is, common stock (for common ownership), micro savings bonds, specialist instruments and institutions (e.g. real estate investment schemes for real estate; industrial development banks for industries; infrastructure bonds for infrastructure projects; municipal revenue bonds for local projects, etc). Such financial instruments should be linked to practical industrialisation projects and entities that will be in need of such funding.

Today, Tanzania has over 50 banks and non-banking financial institutions with combined balance sheets size closer to 25 per cent of GDP. However, the majority of these institutions are commercial banks mainly focusing on providing short to medium term (up to 3 years) working capital funding to

businesses. Lending activities are highly geared towards supporting trading activities and personal loans. A mix of banks, including banks that will provide financing to industries, is urgently required, and the government has to champion this by way of an appropriate ownership and governance model, as suggested below.

8.4.1 Commercial Banks

Commercial banks should be encouraged to get heavily involved and align themselves with the country's industrialisation and transformation goals. By building their capacity to finance long-term projects and enterprises under the industrialisation and infrastructure development programme, banks should be able to extend their credit tenure to long term. Banks should be able to match their lending with sources of capital that can be obtained from the capital markets via issuance of corporate bonds. Currently, there is only one corporate bond issued by commercial banks in the stock market. However, it makes sense for commercial banks to tap into public money (via IPOs and bonds) to maximise their ability to finance long-term projects and enterprises. In other countries (such as, Sri Lanka and Nigeria among others), banks, by business model, are compelled to partly access public money, through an issuance of shares, bonds and other commercial papers, and to list into the stock market. Such long-term sources of capital are then matched with long-term investments and credits.

The government is advised to create a conducive regulatory framework that will motivate commercial banks to participate in the investment banking space, providing transaction and corporate financing advisory services, as well as arranging syndication credits.

In the past ten years, our banking sector has recorded a compounded annual growth rate of 15 per cent. This growth may be maintained, with potential for further upside if we increase our propensity to save (as covered above) and increase banking sector penetration and outreach. With such growth, by 2021, our banking sector size will be about Tsh 43 trillion, up from Tsh 27 trillion today. The lending to total assets ratio is currently between 65 per cent and 70 per cent of the total banks' assets. If we aim to encourage banks to heavily engage in FYDP II priority projects and therefore manage to direct 25 per cent of the total lending activities into the identified projects, this will translate into a cumulative Tsh 9 trillion of money available to FYDP projects from our banks in the next five years.

8.4.2 Sector Specialist Banks

We should also establish specialist banks/financial institutions such as:

- Industrial development bank (targeting the manufacturing component of industrialisation)
- Infrastructure development bank, as is the case with Tanzania Agricultural Development Bank (TADB) which provides wholesale lending for agricultural projects.
- Construction industry-focused banks lending to building material manufacturers
- Women's Banks (the few that exist today are poorly capitalised)
- Banks lending to SME industries, etc

These specialist banks/institutions should be tailored to support industry-led projects and enterprises, and ownership and governance of such financial institutions should be strategic so as to enable accountability and efficiency. They should be public-private owned with clear mandates, among others, to provide long-term credits/capital at subsidised financing costs for projects identified in the FYDP II. The government should provide seed capital to these banks, while the private sector (local and foreign) should participate via a combination of private placement and IPOs. With IPOs and listing, these institutions will be able to efficiently raise future capital by way of rights issues and/or bonds issuances.

The government has the intent to capitalise TIB (gradually) to the tune of up to Tsh 1 trillion to build its capacity to finance some of the projects and programmes identified in FYDP II. However, the Tsh 1 trillion is relatively small, given the overall financing requirements in the FYDP II, set to the tune of Tsh 107 trillion. Therefore, in addition to the government's equity financing, TIB should consider accessing other sources of funds (i.e., public funds from the local capital markets), as well as strategic partnerships with international financial institutions that have shared interest, such as AfDB, IDC and PIC of South Africa, EIB of Europe and China Industrial Development Bank, among others. This will allow the bank to continuously access public money whenever substantial funds are required, via rights issuances, issuing of corporate, infrastructure, industrial or revenue bonds at competitive and efficient cost of funding set by market forces. Furthermore, this will increase TIB's (or other established specialist financial institution's) institutional capability to lead or arrange syndications with both local and international financial institutions.

8.5 Developing and Increasing the Depth of Capital Markets

Tanzania's capital markets are still underdeveloped. The local stock exchange is narrow and thin (domestic market cap to GDP is only about 10 per cent; similarly, liquidity ratio is also at 10 per cent). The stock market has not been part of the country's development plans (same applies to FYDP II), and DSE has not been considered a primary national engine of economic development by the government or donors. For instance, instead of driving most privatisation through the DSE and creating a tax efficient structure for companies listed on the exchange and investors in listed securities, different policies have been chosen. The consequences of these policies are an economically weak stock exchange without adequate supply of securities in the marketplace. This is a big lost opportunity for financial inclusion, domestic capital formation and broad-based economic development.

To avoid repeating similar mistakes in the future, the government should deliberately aim to revolutionise the growth and vibrancy of the stock market in Tanzania by ensuring that, for example, all new privatisations of state-owned enterprises should be conducted through the DSE. Tax structures should be changed to use tax as a strategic tool for capital market development, and all key stakeholders should support growth of the local exchange. With a vibrant stock market (brought about by, among others, privatisation through DSE), entrepreneurs, industrialists and business owners will be attracted to use the capital market for enterprise growth; this act encourages more savings and capital formation.

8.6 Macro-Economic Stability and Stable, Predictable Fiscal Policies

Our ability to prudently manage our macro-economic policies is paramount in this process. We should pursue macro-economic policies that are both pro-investment and pro-growth. Currently, because of the inefficiencies in our domestic financial markets, the interest rates regime does not encourage borrowing, raising long-term capital or investment in productive sectors. With yields for government papers exceeding 15 per cent, it only makes sense for investors (banks, pension funds, high net worth private individuals, corporate with surplus balance sheets, etc) to reject industrial development projects and put their money in banks or buy treasuries. It is difficult for financial institutions to provide risky finance to private enterprises while the government borrows at 15 per cent and above. This becomes clearer as one considers all other challenges/risks/inconveniences involved in managing productive enterprises (i.e., labour problems, problems with contracts management, payments to customers and by suppliers, delayed approvals, etc). Given our low level of savings and accumulation of capital internally,

difficult borrowing (as is the case currently) means firms cannot invest much in the envisaged productive enterprises.

8.7 Domestic Borrowing as Strategic Economic Policy Instrument

As argued above, the government should pursue macro-economic policies that will make domestic borrowing affordable to many, and not only attractive for the government to borrow, but also attractive and easier for the private sector to use the debt market to raise both short and long-term financing. The government should avoid crowding out the private sector. Under existing circumstances, where yield in government securities (treasury bills and treasury bonds) exceeds 15 per cent in the primary market, it is difficult to develop the domestic bonds market. With the continuation of current circumstances, there will be a continued minimal interest from corporate bodies to issue corporate bonds, or municipals to issue municipal (revenue) bonds. It is also difficult to motivate the growth of a secondary market for bonds as long as the primary market auction yield curve continues its upward trend.

As of June 2015, the stock of domestic debt was Tsh 7.6 trillion, closer to 10 per cent of GDP, with 72 per cent (Tsh 5.5 trillion) of these being government bonds, and 24 per cent (Tsh 1.9 trillion) being treasury bills. Almost 50 per cent of domestic debt is held by commercial banks, 21 per cent is held in the Central Bank, 16 per cent by pension funds, and 8 per cent by insurance companies. Given the attractiveness of government papers, financial institutions will continue to place their funds with the government instead of lending to productive enterprises.

There are currently only three outstanding corporate bonds listed in the stock market, and they are worth about Tsh 57 billion; this is 0.1 per cent of the total bonds market (i.e., government bonds dominate 99.9 per cent of our bonds market). Kenya's total bonds market is equivalent to Tsh 22 trillion, and 7 per cent of these are corporate issued bonds.

This data tells us that we need to create an environment that will attract private enterprises to access public money by issuing corporate bonds. We should enable corporations to issue bonds, and to have, at any moment, corporate bonds outstanding of at least 1 per cent of the nation's GDP (this will be equivalent to Tsh 1 Trillion, at the current GDP). Furthermore, we need to consider carefully opening up our domestic bonds market for the wider investors' base via strategic liberalisation of the country's capital account.

8.8 Dollarisation is an Enemy of Capital Formation

Although the value of the Tanzania shilling against all major international currencies has remained stable for several years, Tanzanians do not seem to have a lot of faith in the country's legal tender. The Government has had a huge influence on this habit by making many local procurements from local agents of foreign suppliers (motor vehicles, plant and machinery, etc) in foreign currencies. Consultants working for the government are also regularly paid in foreign currency. The same goes for hotel charges, residential rent and much more. Tanzania remains the only economy in the EAC where companies and traders charge for local goods and services in US dollars and other global currencies. This needs to stop immediately.

The use of the local currency should be mandatory for all local purchases, and all invoices raised by businesses in the country should be made in local currency. We should avoid “dollarisation” of our economy because of its adverse effect on the value of the local legal tender and encouragement of capital flight. This should come by way of policies and strict enforcement of existing laws.

8.9 Strategic Partial Privatisation of State-owned Entities

Blending private domestic and foreign investment through shareholding of state-owned enterprises is vital for creating a vibrant local capital market. Government ownership in existing (and new industries) via financial interests/commitments, combined with a large number of shares trading publicly in the stock market, plus joint ventures with strategic/industrial investors will bolster the financing of the national industrialisation project.

If we can learn from our own experience, SOEs that are being partially privatised through a combination of controlling state ownership + strategic/industrial investors + IPO (and public listing), such as TBL, TCC, NBC and NMB, have been socially and economically more impactful than other forms of privatisation. Going forward, targeted and strategic partial privatisation, where the state retains controlling ownership stake, combined with an invite for strategic/industrial investors to own and manage identified enterprises while allowing public ownership (via IPOs), should be encouraged.

State-owned enterprises and parastatals such as TANESCO, should be restructured and be encouraged to list into the stock market in order to access private funding sources. Entities with similar nature and mandates within the region are efficiently run following their restructuring and listing in local exchanges; KPLC and KENGEN in Kenya are both listed in the Nairobi Securities Exchange. Umeme of Uganda is dual listed in the Uganda Stock Exchange and Nairobi Securities Exchange. The same strategy may apply to

TPDC and/or STAMICO, as companies with similar models and mandates within the region are listed into local exchanges such as, ZCCM in Zambia is listed in the Lusaka Stock Exchange.

Following their listing, these companies will be run efficiently, better managed, more accountable, and will reduce use of taxpayers' money to pay for inefficiencies and other economic burdens. Some notable entities where the government has ownership but may be partially privatised through the strategies described above are:

- NBC
- Tanzania Postal Bank
- Tanzania Investment Bank
- Mbeya Cement Company
- Tanzania Ports Authority (could be split into Ports Owner/Regulator/Landlord and Port Operator)
- TTCL
- Kilombero Sugar Company
- Mtibwa Sugar
- ATCL
- Airtel
- NIC
- STAMICO
- TPDC
- East African Cables

Privatisation through listing will have several benefits such as:

- Provision of access to efficient finance to these entities
- Economic empowerment to citizens and provision of quality jobs to many
- More government revenue (by way of taxes)
- Growth of the local capital market
- Ensuring transparency and good governance

8.10 Unlocking Pension Funds for Industrial Development

There is an urgent need to better leverage our pension funds reserves, currently valued at Tsh 8 trillion to benefit the industrialisation project. Using pension funds money to finance the emergence of new industries is not a one-way street, because more industries will mean more jobs and, therefore, more paying members for pension funds. Without growing the numbers of paying contributors, our pension funds face an uncertain future. For many years now, pension funds in Tanzania have spent far too much money on lavish and unprofitable real estate investments, many of which are facing sustainability challenges at the time of writing this book. Significant amounts of pension money have also been spent on government infrastructure projects such as the University of Dodoma, Kinyerezi II Power Station, Kurasini-Kigamboni Bridge and many others with no guaranteed return of investment and with shaky loan repayment prospects. This needs to change before it is too late. It is high time we took a close look at the governance frameworks of our pension funds and the governing principles for investment of pension funds.

8.11 An Urgent Call for Pension Sector Reforms

For us to utilise pension funds for industrialisation and economic transformation, we need to reform our pension sector. Reforms such as segregating administration from the investment part of pension funds, introduction of independent funds managers, introduction of supplementary schemes, etc will unlock pension savings (funds supply side) for investment in our industrial development. We may learn from Chile. Back in the early 1980s, Chile, launched reforms of their pension sector by introducing privately run pension funds. The monies these funds accumulated, running into hundreds of billions of dollars, enabled the implementation of the Chilean industrialisation programme. As a result, Chilean companies and projects prospered and expanded their operations far beyond their country's borders to the point where they now dominate the business sectors in Latin America. Chile is a good example of smart leveraging of the pension sector for sustained economic growth. The importance of a well-functioning pension sector is hard to overstate.

One of the proposals to implement this is to set aside a certain percentage of the pension funds reserves (via investment guidelines and policies) that can be allocated to finance enterprises and projects in the manufacturing sector under FYDP II. The financing model can be via private placements, participation in IPOs and debt/bonds issuances, investment through asset managers, private equity and venture capital funds, direct investments in safe projects, etc. For a start, we propose setting aside at least 20 per cent of the pension investment funds for industrial projects.

8.12 Regional Integration of Financial Markets

Efforts for financial markets integration within the EAC and SADC regional blocks, including integration of capital markets to increase and widen the investor base for financial resources mobilisation in order to support industrialisation, should be expedited without delay. Under this banner, IPOs will have a larger investor base to pool funds from and there will be more liquidity in the stock markets, which in turn will enable implementation of region-wide funding vehicles to finance industrial and productive capacities within the regional industrialisation and infrastructure development frameworks.

8.13 Regional Industry and Infrastructure Fund

Upon harmonisation of industrial and infrastructure policies, Tanzania may champion the need to create a regional fund for industry and infrastructure development. The fund-probably under the guidance of AfDB (under AfDB's industrialisation strategy for Africa), the US\$ 20 billion Chinese Government Africa industrialisation fund, the WB and/or working closely with multilateral development finance institutions such as Multilateral Investment Guarantee Agency (MIGA) – will enhance and speed up the process of raising capital from local and international capital markets. In such arrangements, PPPs or private sector led projects may get priority for the funds. Infrastructure development projects that have direct impact in stimulating industry growth will also be afforded priority.

8.14 International Bonds Market

The government is currently in the process of issuing an US\$ 800 million sovereign bond to international investors. Many other African countries have accessed the international financial market via issuance of sovereign bonds, and in the past decade, Africa raised over US\$ 35 billion by issuance of sovereign bonds. Tanzania has experience with issuance of a commercial foreign currency based loan (currently outstanding at US\$ 600 million). Therefore, as we contemplate accessing international financial markets with a sovereign bond, our decision should be guided by serious intents to prudently pursue financial management sustainability, transparency and fiscal discipline.

Bonds issued in the international financial markets are fundamentally different from aid, grants, concessionary loans or any other non-bilateral financing arrangements. Under this banner, the government needs to consider the following major issues:

1. The need to improve our credit rating, debt sustainability and investment climate – we should aim at reducing impediments to private investments (e.g., red tape, inefficient debt management, corruption, weak infrastructure, etc)
2. Cost of finance/ interest rates (which are fundamentally guided by the quality of the country's credit worthiness/rating, as well as the timing of bonds issuance)
3. The ends to which funds raised will be utilised

Funds raised should be used to finance carefully selected activities within the overall industrialisation and economic transformation framework (i.e., importation of capital goods, foreign technologies and capital infrastructure related projects).

8.15 Tanzanians in Diaspora as Source of FDI

Tanzanian diaspora remittances are currently less than 0.1 per cent of the African's total remittances, which totalled US\$ 64 billion in 2014. The country has so far not tangibly benefitted from the diaspora, both financially and in other aspects. We need to define the role of diaspora in our development process. If well managed, the diaspora can have positive contribution to economic transformation in terms of skills and knowledge transfer, networks, entrepreneurial capacity and remittances.

Tanzanians living abroad should be encouraged to invest back home, particularly in entities and projects that support industrialisation, education and technology. We, therefore, need to create a conducive environment and financial instruments that will be designed to facilitate investment by the diaspora. This may include creation of special savings instruments that can be intermediated for industrialisation financing purposes, real estate, etc. Issuance of diaspora bonds may also be considered as we improve our banking processes, reduction of cost for remittances, as well as securitisation of remittances. These initiatives should be able to attract at least US\$ 50-100 million per annum from the diaspora, then gradually increase as projects, investment and awareness increase.

8.16 Capital Outcomes for FYDP II

If properly managed, the above-mentioned reforms can deliver about Tsh 52 trillion, of which Tsh 30 trillion of new capital will be dedicated to financing FYDP II projects over the next five years of the plan. Table 12 details the potential private sources of funds from five key sources: FDI, banks, pension funds, corporate (or specific project based) bonds, equity (private placements and public offerings), as well as diaspora remittances.

Establishing the actual sources of funding for this project and its quantum is by no means a precise science. However, we estimate that the scenario laid out in the table below is possible if all the right buttons are pressed and if the Government of Tanzania gives priority and encouragement to the private sector.

Table 12: Potential sources of funding for the industrialisation project in Tanzania

SOURCES OF FUNDS	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	Total
A: DOMESTIC SOURCES						
Pension funds						
Pension funds assets	8,400	9,240	10,164	11,180	12,298	
FYDP-II related plans (in Tshs. billion)	840	546	647	764	895	3,692
Commercial & Specialist Banks						
Banking Sector Balance Sheet	27,000	31,050	35,708	39,278	43,206	
Bank loans	18,900	21,735	24,995	27,495	30,244	
FYDP-II related plans (in Tshs. billion)	5,670	851	978	749	825	9,073
Domestic borrowing (bonds)						
Government new borrowing	1,597	1,701	1,119	801	687	
Corporate bonds issuances	160	340	336	401	481	
FYDP-II related plans (in Tshs. billion)	80	170	168	200	240	858
B: INTERNATIONAL SOURCES						
Equity (Private & Public)						
As per FYDP-II (in Tshs. billion)	2,437	2,850	3,050	3,262	3,381	14,980
FDIs						
FDI Flows in Africa (US\$ billion)	90	105	120	137	155	
Tanzania share of FDI (5% - 7%) of FDI (5% - 3	1%	3%	4%	4%	5%	
FDI to Tanzania (in Tshs. billion)	1,935	6,773	10,320	11,782	16,660	

Financial Resources Mobilisation for Industrialisation

FYDP-II related plans (in Tshs. billion)	968	3,386	5,160	5,891	8,330	23,735
Diaspora investments						
Estimates (in Tshs. billion)	10	20	25	25	30	110
C: TOTAL PRIVATE SOURCES OF FINANCING (Tshs. billion)	10,005	7,823	10,028	10,891	13,701	52,448

***Source:** Author's projections. This excludes figures for potential sources from the international bonds market, leveraging from regional integration financial markets and the regional industry and infrastructure funds.*

Chapter 9

National Exceptionalism is a Simple but Powerful Idea

9.1 Exceptionalism as a Source of Strength

Nations often mould and present their history, culture/art/philosophy, science, economic and political systems in ways that demonstrate this exceptionalism, as we have seen with France, Germany, India, Pakistan, Japan, Iran, Israel, North Korea, Spain, Britain, the United States, the USSR, the EU and Thailand, and even historic empires such as China, the Ottoman Empire, the Roman Empire and Ancient India.

9.1.1 American Exceptionalism

For example, American exceptionalism ties three ideas together:⁷⁰

1. That the history of the United States is inherently different from other nations, as it emerged from the American Revolution, based on a uniquely American ideology, emphasising liberty, egalitarianism, individualism, democracy and laissez-faire, and it is therefore “the first new nation” of the modern age
2. That the United States has a unique mission to transform the world and spread their idea of democracy, as per Abraham Lincoln’s statement that Americans have a duty to see to it that “government of the people, by the people, for the people, shall not perish from the earth”; and,
3. That these hereto fore-mentioned history and mission give the United States a superiority over other nations

9.1.2 Japanese *Nihonjinron*

Similarly, the Japanese concept of *nihonjinron*, vastly elaborated upon in books and articles throughout Japanese history, but especially so after World War II, is used to demonstrate the uniqueness and peculiarities of the Japanese

⁷⁰ Seymour Lipset, "American Exceptionalism", 1997

culture and mentality, particularly by comparison with those of Europe and the United States and includes a number of ideas:⁷¹

1. The Japanese race is unique, having no known similarities with any other race.
2. This isolation is due to the unique circumstances of living in an island country cut off from the cross-currents of continental history, with its endless mixing of tribes and cultures. This unique, isolated geography and the associated climate, with its unique patterns, influences Japanese thinking and behaviour, such that human nature in Japan is uniquely an extension of nature itself.
3. The Japanese language has a unique grammatical structure and native lexical corpus whose distinctive syntax and connotations condition the Japanese to think and view the world in unique patterns unparalleled in other human languages. The Japanese language is also uniquely vague such that foreigners who speak it fluently may, therefore, be correct in their usage, but the thinking behind it remains soaked in the alien framework of their original language's thought patterns.
4. Japanese psychology, influenced by the language, is defined by a particular cast of dependency wishes or desires that conduce to a unique form of human relationship, in which clearly defined boundaries between the self and the other are ambiguous or fluid, leading to a psychological and social ideal of the fusion of self and the other.
5. Japanese social structures consistently re-mould human associations in terms of an archaic family or household model characterised by vertical relations, clan, and parent-child patterns. As a result, the individual cannot properly exist, since groupism will always prevail.

Among many books and articles that emphasise this idea is an essay titled "The Japan That Can Say No: Why Japan Will Be First Among Equals" – co-authored in 1989 by Shintaro Ishihara, then Japanese Minister of Transport who would become Governor of Tokyo, and Sony Co-Founder and Chairman Akio Morita. The essay critically examined American business practices and prejudice against Japan, extolled Japanese superiority, and advocated a more independent Japanese stance on issues ranging from business to foreign affairs.

9.1.3 Korean, Chinese, German and Jewish Exceptionalism

The Koreans have a similar approach with Hangul supremacy, the Chinese with Sinocentrism/Chinese nationalism, the Germans with *Sonderweg*, the Jewish with being the “chosen people”, to name a few more examples.

⁷¹ Nihonjinron, Wikipedia, 2016

These nations/groups think of themselves as unique, special or superior, and use this as fuel to drive themselves forward.

9.1.4 Ethiopian Exceptionalism

Among Africans, the Ethiopians probably have the strongest belief in their exceptionalism, and they base this belief of uniqueness on several things: their history, with the Ethiopian Empire that dates back to 1137 AD, the Kingdom of Aksum that dates back to the 1st century AD, and the Kingdom of D'mt that dates back to the 10th century BC; their Ge'ez language script – one of the oldest alphabets still in use in the world and the only widely-used African script; their use of Amharic, a native language, in government – one of two African countries of 55, which use a native language in government (Tanzania is the other one); their unique cuisine; incredible architecture and design; a rich history in science and art; very distinctive styles of dance and music; the presence of oldest remains of human ancestors; the world's largest Orthodox Christian population, and the oldest Muslim settlement in Africa; theirs being the only African country to triumph over colonisers; a distinct Ethiopian calendar; a distinct time system, with the day beginning at 6 am rather than 12 am (as in Tanzania); and others.

Ethiopians draw on all this as a source of strength, pride, confidence, uniqueness, and exceptionalism. Is it a surprise then that Ethiopia has been the fastest growing economy in Africa over the past decade, has recently built 35 universities for 500,000 students, has completed the first urban metro in sub-Saharan Africa, is building Africa's largest hydropower dam, and is quickly becoming the light manufacturing hub of Africa?

9.2 Embracing the African Identity, Freeing the African Mind

The first Prime Minister of the Democratic Republic of Congo, Patrice Lumumba, is quoted as saying, more than 50 years ago, that “the liberation of African minds will take much longer than the liberation of African colonies,” and how right he was with this dire prediction! In the decades following Africa's independence from colonial rule, we have been witness to Africa's young and brightest moving out of the continent in thousands every day, ostensibly seeking a better life in the developed global North, West and East. A recent study showed that of the about 4 million Black Africans living in the US today, nearly 50 per cent hold at a minimum a college diploma, making them the second best educated racial group in the US (after Asians).

Black Africans in the US are even better educated than whites and four times better educated than black Americans. Yet these highly educated Africans live a life on the margins of society, struggling to be accepted in their chosen new homelands. Many say such a life is better than trying to

make it back home in Africa. Their collective talents and capabilities could have made a significant impact on Africa's development, but they are forever lost, and what is worse is that thousands keep following in their footsteps every day.

All this is happening at a time when the rest of the world is referring to Africa as the latest and possibly final frontier of human social and economic development. Home to six of the top ten fastest growing economies in the world over the past twenty years, Africa has more natural endowments (mineral wealth, arable land, fresh waters sources, wildlife, forestry and marine life) than the rest of the world put together. The continent's growth prospects are considered by economists to be exceptional if not historic. So one must wonder why the majority of Africans see no hope in the future of this continent when others are rushing to cash in on its vast fortunes.

When it comes to engagement in the global industrial value chains, Africa remains a place inhabited by people who have resigned themselves to being nothing more than mere consumers of goods produced elsewhere by non-Africans. Most times, Africans cannot even afford this kind of existence (of mere consumption) without being assisted in the form of development or humanitarian aid.

The last three decades in particular have seen Africa become not only the biggest net importer of manufactured goods from the rest of the world, but also the world's leading importer of used manufactured goods such as used clothing, used furniture, used computers, used industrial machines, used home appliances and even used motor vehicles. As other countries of the world extend and deepen the reach of their industrial value chains, Africa is sinking deeper into the hole of apathy, indebtedness and dependence. This worrying trend needs to be stopped if Africa is to have a future where its people will enjoy a dignified place in the global human community.

Africans must work hard towards proving Patrice Lumumba's prediction wrong, for their own good and for the good of future African generations. Many theories have been floated in attempts to explain this unique African condition, the heavy burden of low self-esteem that seems to rest on the shoulders of every African no matter his/her social circumstances. Some have suggested that centuries of defeat and colonisation at the hands of invading foreigners is the main cause of Africa's apathy, lack of development and eagerness to outsource the resolutions of even the simplest of problems to others. Frantz Fanon, Afro-Caribbean psychiatrist, philosopher and social theorist, wrote that far worse than the economic and physical violence was this colonial violence against the mind and identity of the colonised whereby

the colonised individual was “stunted” by a “deeply implanted sense of degradation and inferiority.”⁷² This argument, however, taken at face value, cannot stand the test of scrutiny when one considers that today’s powerful emergent countries such as China, India, Vietnam, Singapore and Malaysia were not only colonised for a longer period of time, but also had to endure brutal wars of destruction before they broke free. The question then remains: “What was so special about Africa’s colonial experience?”

Ngũgĩ wa Thiong’o, a Kenyan writer and social theorist, wrote in *Decolonising the Mind* that colonialism and the use of colonial languages are “cultural bombs” that have continued to destroy pre-colonial African histories and identities:

The effect of the cultural bomb is to annihilate a people’s belief in their names, in their languages, in their environments, in their heritage of struggle, in their unity, in their capacities and ultimately in themselves.⁷³

Ngũgĩ calls this process “colonial alienation” whereby Africans have come to view their homelands and societies as “wastelands of non-achievement”, that is, Africans have come to believe that their societies don’t have rich histories in science, art, philosophy, culture, language, literature, technology, political governance, and that they are therefore inferior to the coloniser and other societies out there, which supposedly do have these things. The biggest threat, Ngũgĩ says, comes from the adoption of English, French, etc for official use while African languages are relegated to unofficial, day-to-day usage such that there is therefore a “deliberate disassociation of the language of conceptualisation, of thinking, of formal education, of mental development, from the language of daily interaction in the home and in the community.”

It is, therefore, true that colonialism and all that it brought, including the so called civilisation of the black man did indeed cause African societies to lose something so essential to human existence, namely self-belief, pride and a sense of responsibility for one’s own destiny. Colonialism deprived Africans of their cultures, spirituality and languages. Today, the majority of African countries use foreign languages (usually the language of their former colonial masters – English, Portuguese and French) as their national language, notwithstanding the fact that the overwhelming majority of Africans cannot speak these languages. Also today, more than 70 per cent of all black Africans subscribe to foreign religions. Some African governments have even gone as far as passing legislation to outlaw traditional African religions, languages and customs.

⁷² Frantz Fanon, *The Wretched of the Earth*, 1961

⁷³ Ngũgĩ wa Thiong’o, *Decolonising the Mind*, 1986

It is not surprising that compared to other societies elsewhere in the world, Africans come across as inferior and culturally unhinged people, without roots or confidence in their own capabilities, devoid of a kind of spirituality and traditions they can naturally relate to and forever striving to fit into a world order into whose making they have made no contribution.

The successful turnaround of the Asian economies and their refusal to accept economic aid from the developed north even when they desperately needed it (Indira Gandhi refused American humanitarian aid in the aftermath of a massive earthquake forty years ago), sets them apart from Africans who have happily turned to their former colonial masters as a source of the bulk of their development budgets.

One thing that seems to cut across all the countries of East Asia, Southeast Asia and India, whose growth story has dominated global headlines over the past four decades, is that they have very strong local spiritual and cultural institutions. They take pride in speaking their local ethnic or national languages, even as they strive to master foreign languages too. They fought tooth and nail to preserve their cultures and traditions. Their religions and ways of life were left intact by colonisation despite many attempts to dismantle them. This, it turns out, is part of the explanation for their extraordinary success in turning around their economies and claiming a dignified place in the global human community.

9.3 Tanzania: A Proud Swahili Nation

With more than 120 different ethnic groups and tribal languages, Tanzania is genetically the most diverse country in the world. Yet, of all African countries, it is the one that has not had any serious ethnic conflicts because of the unity fostered by Mwalimu Nyerere under Swahili nationhood. Spoken as a first or second national language by more than 140 million people in Tanzania, Burundi, Congo (Kinshasa), Kenya, Mayotte, Mozambique, Oman, Rwanda, Somalia, South Africa, Uganda, UAE and the USA, Swahili is the single most widely spoken language in Africa and one of the top ten most widely spoken languages in the whole world.

Under the leadership of Founding Father Julius K. Nyerere, Tanzania deliberately embraced Swahili not only as a national language, but also as a way to express their national identity and pride as a people. Proper Swahili writing, grammar and literature were taught in school as mandatory subjects all the way to high school. Swahili was used as the default medium of communication in government offices, Parliament and even international conferences. Although we have not achieved similar success in finding the way back to our cultural and traditional roots (Christian or Islamic faith institutions have continued to dominate the spiritual space within which

we congregate, for example), Tanzania can claim today to be one of the few African countries that have successfully used a common indigenous language as a tool for the unification of its people into a strong, peaceful and harmonious society.

There are worrying signs, however, that the influence of Swahili as a unifying factor and source of national pride has been waning over the past couple of decades. It is evident that many years of using Swahili widely as a common medium of communication have not led to the emergence of a strong and widely shared Swahili culture across the nation. This is very clear in Tanzania today, where rather than creating and translating works in literature, economics, business, history, etc, into Swahili and encouraging the widespread use of Swahili among political leaders and citizens and in formal education and businesses, we see English as the sign of sophistication; we think that economics and philosophy and technical concepts can only be studied in English, we clamour to name and operate our businesses, schools and research institutes in English and our political leaders use English when foreign delegations use their own languages.

- Instead of teaching our students that colonialism was a mere 70-year blip in our 3,000-year history of civilisation and innovation, and in our 250,000-year history of anatomically modern humans, we ignorantly let colonialism define the beginning of our nation and teach our students that our history is only fifty years old. We forget that many of the above-mentioned countries also faced colonisation too, partial foreign domination, total war or internal turmoil, but simply reframed those periods as blips in their vast histories and moved on.
- Instead of pushing and providing incentives to create Tanzanian mobile telephone companies, we get excited about the latest models of Samsung phones and iPhones; we forget that South Korea, which sells us the Samsung phones, was as poor as Tanzania in 1960.
- Instead of strategising on how to make the most of our vast human brilliance and natural resource wealth, we welcome foreigners who take advantage of our ignorance and leave us with crumbs. How can Tanzania become an economic powerhouse with this mindset?
- We forget that all major powers that have risen recently/are rising such as, China, Japan, South Korea, Norway, Malaysia, Vietnam, Sweden, Thailand, Germany, Qatar, UAE, and others, all use their own languages – often with a unique script – for everything and sometimes teach English, but only as a secondary language.

Ngũgĩ and Fanon say that psychological freedom – the rejection of colonisers’ linguistic, cultural and identity forms, and a strong re-adoption of and belief in one’s own – is a precondition for achieving political and economic freedom.

We are fortunate that Mwalimu Nyerere sowed the seed of psychological freedom early on and instilled in Tanzanians a sense of self-pride, self-worth and self-love that was independent of the European. He fostered nationalism and mandated the widespread use of Swahili, which has made Tanzania, along with Ethiopia and most recently Rwanda, the only countries in sub-Saharan Africa that use their native languages in the conduct of official government business.

We must actively forge a Swahili/Tanzanian identity of uniqueness, greatness, brilliance, and unity and self-confidence and self-pride in being Swahili/East African (and not striving to be American or British or Chinese). We should find a suitable term for this in Swahili; *Uzalendo* comes close, as does Rwanda’s *Agaciro*, but Swahili language scholars can likely find a better-suited word to embody this spirit. Having said that, the concept of Tanzanian exceptionalism should be dealt with carefully because, ultimately, the Tanzania we know of was drawn up by Europeans, and the whole idea of exceptionalism is to go beyond all this.

So how do we go about building the structure upon our foundation?

9.4 Creating a New National Identity for Tanzania

How do we build Swahili exceptionalism, and get Tanzanians to draw strength from it, to feel psychologically empowered and personally invested, and to triple their efforts to drive the nation forward?

- Write and spread widely the true history of East Africa and of Africa, prior to colonialism, and emphasise the advances we made in the sciences, art, entrepreneurship, philosophy and political organisation. Until the lion learns to speak, the tales of hunting will be told by the hunter and until the lions have their own historians, the history of the hunt will always glorify the hunter. Until now, outsiders have defined our history for us; it is time we take charge of our own destinies and tell our own stories. Below are just a few examples of our rich history. We need to make a much larger effort to unearth more of this. The true history of East Africa, and Africa in general, is where:
 - Civilisation cities, art, science, innovation and philosophy have thrived for thousands of years, and where mankind emerged millions of years ago

- The Haya people in Northwestern Tanzania invented, around 100 BC, a blast furnace to forge carbon steel at temperatures exceeding 1,820 °C, a method that was technologically more sophisticated than any developed in Europe until 1800 years later in the mid-19th century.^{74,75}
- Binary code, the basis of the digital circuit, was invented, as a system of single and double strokes, and used in Bamana and Ifa divination in West Africa before the 10th century AD, was thereafter passed into North Africa and Spain by Islamic mystics and mathematicians, was refined by German Gottfried Leibniz in the 17th century AD from one stroke and two strokes into a one and a zero, was then adapted by English George Boole and used to create Boolean algebra, which Hungarian John von Neumann in turn used to create the digital computer. As mathematician and cyberneticist Ron Eglash succinctly puts it, “So all these little PDAs [personal digital assistants] and laptops – every digital circuit in the world – started in Africa.”⁷⁶
- Fractals – natural phenomena or mathematical sets that exhibit a repeating and self-similar pattern that display at many different scales – and fractal geometry and mathematics have been prevalent for millennia in African architecture, art, games, divination and trade. Circular houses appear in circles of circles in Zambia and elsewhere, royal insignia has a rectangle within a rectangle within a rectangle, self-organising patterns spontaneously occur and are strategically utilised in the *bao* board game in East Africa, social scaling is mapped onto geometric scaling when planning a village in parts of West Africa, scaling patterns occur in cornrow hairstyles, calabashes in traditional homes in Mali are stacked recursively, fences in the Sahel utilise nonlinear scaling. Traditional African patterns most distinctly display fractal geometry, while traditional Native American and South Pacific patterns have their own styles, but they are not fractal.⁷⁷
- The Swahili City-States were founded over 2,000 years ago by coastal Africans, and their trade with groups across the Indian Ocean was already flourishing by the 1st century AD; with the arrival of Arabs in the 8th century AD, the cities and trade

⁷⁴ Peter Schmidt & Donald Avery, *Complex Iron Smelting and Prehistoric Culture In Tanzania*, 1978

⁷⁵ Ivan Van Sertima, "The Lost Sciences of Africa: An Overview", 198

⁷⁶ Ron Eglash, *The Fractals at the Heart of African Designs*, TED Talks, 2007

⁷⁷ Ron Eglash, *African Fractals: Modern Computing and Indigenous Design*, 1999

grew even more rapidly, with massive stone towns being built, starting in the 10th century AD, whose architectural marvels can be seen today, for example, in Kilwa Kisiwani and Songo Mnara in Southeastern Tanzania. Among the goods traded at the time were large tree trunks, which required a level of trade and logistics sophistication that went far beyond that of the Silk Road in Asia. Swahili literature and poetry thrived. Archeological digs in Kilwa show that houses often featured a built-in bookshelf, demonstrating an intellectual blossoming that extended to the household level. Ibn Battuta, Moroccan Muslim scholar and one of the greatest travellers of all time, visited Kilwa in 1331, and described it as “one of the most beautiful and well-constructed towns in the world.”^{78,79}

- Mansa Musa, emperor of the Mali Empire in the 14th century AD, ruled all or parts of modern day Mauritania, Senegal, Gambia, Guinea, Burkina Faso, Mali, Niger, Nigeria and Chad, and is thought to be the richest man in history, with an inflation-adjusted wealth of US\$ 400 billion, owning so much gold that he is the only individual in recorded history to individually and directly control the price of gold; he conquered 24 cities, each with surrounding districts containing villages and estates; built schools, mosques, and Sankoré Madrasah (The University of Sankoré), which could house 25,000 students and had one of the largest libraries in the world with around 1 million manuscripts.^{80,81}
- Several scripts including Ge’ez in Ethiopia for Ethiopic languages, Nsibidi in Nigeria, Tifinagh for Berber languages, etc have been used for millennia, while the usage of N’Ko script in West Africa for Mande languages, Vai in Liberia and Mandombe in Central Africa, Osmanya in Somalia, and Mwangwego in Malawi, continue to spread.^{82,83}
- Poetry, philosophy and literature have been masterfully crafted and passed from generation to generation through oral tradition and also in written form, most recently in Tanzania by the likes of Shaaban Robert, Adam Shafi Adam, Muhammed Said

⁷⁸ "Ruins of Kilwa Kisiwani and Ruins of Songo Mnara", UNESCO, 2016

⁷⁹ John Green, "Mansa Musa and Islam in Africa", Crash Course, 2012

⁸⁰ Musa, Mansa (1280-1337), "Black Past", 2016

⁸¹ "Here's what it was like to be Mansa Musa, Thought to be the Richest Person in History", Business Insider, 2016

⁸² Owen Alik Shahadah, *Scripts of Africa, African Holocaust*, 2012

⁸³ "Writing systems of Africa", Wikipedia, 2016

Abdulla, Euphrase Kezilahabi and Julius Nyerere, and vast creative mythologies and storytelling have flourished.

- Art, design and music have been created and have influenced the world, for example, West African traditional rhythms inspired jazz, hip hop, blues and soul music in the US, whereas art and sculpture from Benin essentially started the Cubism movement in Europe, when artist Pablo Picasso viewed and was inspired by these works, and changed his style, beginning with *Les Femmes d'Alger*; Tanzania's Tingatinga school of painting has taken the world by storm, as the works of artists such as Edward Said Tingatinga and George Lilanga have gained international fame.
- The University of al-Qarawiyyin, founded in 859 AD in Morocco, is the oldest existing, continually operating and the first degree-awarding educational institution in the world.⁸⁴
- The Aksum Empire, Kingdom of Ghana, Ancient Egypt, Swahili City-States, Mali Empire, Kongo Kingdom, Kingdom of Buganda, Songhai Empire, Kilwa Sultanate, Empire of Great Zimbabwe, Fatimid Caliphate, Kingdom of Punt, Kingdom of Kush, Ethiopian Empire, Kingdom of Rwanda, Empire of Kitara, Zulu Kingdom, Mossi Kingdoms and Benin Empire are just a few among the many African empires and kingdoms to have long periods of intellectual, cultural, scientific and economic flourishing, many going back as far as 3000 BC.^{85,86}
- Great Pyramid of Giza was built in Ancient Egypt around 2560 BC, remaining the tallest man-made structure in the world for more than 3,800 years.

Why is it that there is such rich African history, such tremendous strides in sciences, innovation and technology, and yet we remain ignorant of so much of it? The late Professor Ivan Van Sertima puts it this way:

This phenomenon of concentration of high technology in a centre (scholar or priest-caste, trading post or royal capital) and its absence or slow spread to the periphery (village or desert outpost or forest) was the same the world over, at least before the industrial revolution. Instancy of communication today – the fact that we live in “global village” connected by radio, telephone, and television – makes it less so... But something very fundamental has remained unchanged.

⁸⁴ "Oldest university", *Guinness World Records*, 2016

⁸⁵ "Seven Medieval African Kingdoms Everyone Should Know About", *Atlanta Black Star*, 2013

⁸⁶ "African Empires", Wikipedia, 2016

High technologies (with their complex information networks) are still concentrated in certain primary centres and still relatively absent or disproportionately dispersed at the edges... It is important to understand this if we are to understand how a science or technology may rise and fall with a civilisation, when the destruction of a centre could lead to the almost instant evaporation or disappearance of centuries of knowledge and technical skills. Thus, a nuclear war could shatter the primary centres of 20th century technology in a matter of days. The survivors on the periphery, although they would remember the aeroplanes and the television sets, the robots and the computers, the space machines now circling our solar system, would not be able for centuries to reproduce that technology... A dark age would certainly follow. Centuries afterwards, the technological brilliance of the 20th century would seem dream-like and unreal. Until archeology began to pick up the pieces, those of us to follow in the centuries to come will obviously doubt what had been achieved in the centuries preceding the disaster. This has happened before in the world – not in the same way, of course, but with the same catastrophic effect. It happened in Africa. No human disaster, with the exception of the Flood (if that biblical legend is true) can equal in dimension of destructiveness the cataclysm that struck Africa.⁸⁷

- Change curriculums being taught in schools to teach this vast history
- Come up with national values, slogans and aims, and disseminate them everywhere across the country as a reminder of Swahili exceptionalism, of people's innate brilliance, of nationalism, of motivation to work hard and achieve the greatness they were always meant to achieve. To this day, whichever city or town one goes to in China, one sees national values like *hard work* and *community* on large banners everywhere.
- We should actively propagate the philosophies of *Hapa kazi tu*; the Magufuli Doctrine of *work hard, don't live beyond your means, and listen to the people* (in Swahili); the values of *hekima, umoja na amani*; the notion that East Africans have historically been innovators and producers, and not just passive consumers; pursuit of excellence in science, culture, spirituality, entrepreneurship and production is core to who we are.
- Ask not what Tanzania can do for you, Ask what you can do for Tanzania (all in Swahili).
- Utilise radio, newspapers, TV, to spread knowledge about our history and spread national values, and help promote and develop the bongo

⁸⁷ Ivan Van Sertima, "The Lost Sciences of Africa: An Overview", 1983

music, movies and literature industries. In the words of Owen Alik Shahadah, director, writer, and Pan-Africanist scholar: “The film format is the perfect delivery mechanism for mass decolonising the African mind.”⁸⁸

- Use Swahili everywhere. As Mwalimu Nyerere and Ngugi wa Thiong'o suggest, we have to stop the deliberate disassociation of the language of conceptualisation, of thinking, of formal education, of mental development (at the moment, mostly English), from the language of daily interaction in the home and in the community (Swahili). We need to make them both Swahili. Language is the ultimate creator and preserver of self-identity and self-confidence, as described before, as we speak it every hour of every day. Our government leaders have to lead the way and use Swahili on every platform, local and international. We saw this with the Vietnamese delegation that visited Tanzania earlier this year; clearly, they could speak English, but, when addressing the public, they spoke in their own tongue.
- Grow and make widely available a vast body of professional and academic subjects and texts in Swahili, and encourage study in them. Reproduce and spread widely the works of literature, philosophy, etc, that already exist in Swahili, for example, the works of Shabaan Robert, Muhammed Said Abdulla and Julius Nyerere, as well as more recent writers. Encourage the creation of vast amounts of Swahili works in medicine, law, business, literature, physics, education, mathematics, history, engineering, economics, philosophy, etc.

Why don't we teach project management, electronics, business studies, medicine, agricultural and factory technician courses in Swahili? This would be the greatest equalising force in Tanzania, where instead of forcing everyone to learn everything in a language that is not their own, they learn in a native language in which they can excel even further. We need to build our intellectual tradition and glorify it.

- Translate on a mass scale foreign works into Swahili, e.g., Professor Ha-Joon Chang's work on economics like *Bad Samaritans* and *Transformative Industrial Policy for Africa*, or Thomas Sankara's speeches on society, politics and economics in *Thomas Sankara Speaks*, science texts from Singapore, vocational and technical texts from Vietnam and Germany, medical texts from India and the US, Chimamanda Ngozi Adichie's novels like *Half of a Yellow Sun*, the Harry Potter series, etc. We need a healthy fusion of locally produced Swahili work and work from abroad that we translate into Swahili.

⁸⁸ Owen Alik Shahadah, Bio, 2007

- Look into which African script could be easily adapted and adjusted for Swahili, and widely spread throughout East Africa. As Owen Alik Shahadah says,

A script is not only a technology for writing the spoken word, it is also a cultural symbol of a people and their identity. The mere sign of Arabic script carries the power of Islam and the Arab/Muslim people. Every time we see Amharic written, we see the might of Ethiopian culture. A script is a powerful political symbol used all over the world to show national identity. It is not accidental, or novelty that Hebrew was reinstated, from obsolescence, when Israel was created in 1948.⁸⁹

A variation of Ethiopia's Ge'ez could be used since they already use it widely, have major works in it, use it online, and partnering would ensure widespread use of one or two African scripts rather than the fragmented, dying use of many. Ge'ez (or whichever we choose) and its alphabet (abugida) could be simplified further for ease of use, along the lines of how the traditional Chinese characters were made into simplified Chinese characters on mainland China a few decades ago.

- Strategically piggy back on movements like #WhatWouldMagufuliDo to spread Swahili exceptionalism and Maguphoria in social media
- Make monthly clean-ups days mandatory as in Rwanda
- Extend scope of national service and military training to involve intellectual rigour (teaching social and political theory), emphasis on Swahili exceptionalism, and training in leadership, teamwork, communication, etc, as is done in Singapore, South Korea, Norway, etc. Extend the national service timespan to one or two years to include a period where youth engage in something for the purpose of the nation: teaching younger children, building roads and buildings, improving agriculture, building enterprises, working as apprentices in vocations of strategic national interest, working in government agencies, SMEs, corporations, etc. Singapore, for example, rigorously trains all males when they finish high school for a few months, and then deploys them for two years in either the police, fire service or army.
- Thomas Sankara in Burkina Faso mandated that the national army be trained in political theory, stating, "A soldier without any political or ideological training is a potential criminal," and had to participate in national production, build schools, health clinics and railroad, raise cattle and poultry, transport mail, the sick and agricultural products, carry out mass immunisation campaigns, etc.⁹⁰

⁸⁹ Owen Alik Shahadah, *Scripts of Africa, African Holocaust*, 2012

⁹⁰ Thomas Sankara, *Thomas Sankara Speaks: The Burkina Faso Revolution 1983–87*, 2007

- Establish elite military academies focused on the above notions and on STEM, and send our youth abroad to work and learn in strategic industries: A recent study analysing military experience in corporate leadership in the US found that between 1980 and 2006, about 30 per cent of all CEOs of large public US firms had military experience, and that these firms, led by CEOs with military experience, had significantly lower rates of fraud, with military leaders about 60 per cent less likely than non-military leaders to engage in fraud, and that during low profit years, the average rate of fraud was just over 1 per cent for military CEOs versus. 5 per cent for non-military ones.⁹¹

- Why might ex-military be more honest? Professor Adam Grant explains:
It's probably a combination of selection and socialisation. On the selection side, it's possible that individuals with high integrity are more likely to be attracted to, chosen by, and retained in the military. On the socialisation side, these principles are likely to be reinforced by the military's strong emphasis on duty and honour.

In the military, one gives oneself to the country and does everything in the interest of the nation, and as we see in Singapore, these are the best people to work in SOEs, in public policy, in the interest of government. China mandates short military drills for children from a young age. Students receive free schooling in return for service to the nation, as in ROTC in the US. Elite military academies can take all we have talked about earlier in regard to Swahili exceptionalism, nationalism and leadership to a new level, as we see with the US Military Academy, which counts among its alumni, two Presidents of the United States, presidents of Costa Rica, Nicaragua and of the Philippines, and many CEOs, and the US Naval Academy, which counts among its alumni, 990 noteworthy scholars, 45 Rhodes Scholars, 16 Marshall Scholars, 50 astronauts, 2 Nobel Prize winners and 1 US President. The record is similar for the Royal Military Academy at Sandhurst (UK).

- National Defence Academy of Japan, PLA National Defence University (China), Korea Military Academies, École Spéciale Militaire de Saint-Cyr (France), Federal Armed Forces University (Germany) and others. Many African leaders in the 1950s, 60s and 70s who went abroad to train or serve in the military learned tremendously, and saw that their own countries were capable of rising, and returned to Africa with revolutionary zeal. Students in these military academies must also be sent abroad, to train or serve in our forces abroad, and to work in industries that are of strategic national interests; for example, we must

⁹¹ Adam Grant, "Where Great Leaders Earn Their Stripes", 2016

send hoards of brilliant young Tanzanians – after being trained in social and political theory, Swahili exceptionalism, leadership – to work as engineers and managers at large oil and gas companies across the world like Sinopec, Saudi Aramco, Petronas, Statoil, ExxonMobil, Total, etc, and return with that knowledge to build the oil and gas industries of Tanzania and the African continent.

- Wear Tanzanian and African-style clothing, and mould the idea of a national cuisine: As Wangari Maathai put it:

India also seemed to deal better with their post-colonial period than sub-Saharan Africa. Gandhi removed his three-piece suit (which represented Western success) and put on a dhoti; he ate Indian food and adopted the symbol of the spinning wheel – all to appeal to the Indian peoples' sense of themselves and their rich, written culture.⁹²

Here, too, government leaders should lead the way, and begin to drop all forms of Western clothing.

- Spread a version of China's cormorant fishing analogy, contextualised to Tanzania: In this form of traditional fishing, the fisherman trains the cormorant bird to fish, and often attracts the fish to the surface with a light; the cormorant bird has a string tied around its neck that isn't tight enough to affect it in any way, but that ensures that when the cormorant dives in and catches fish, the smaller fish can easily be swallowed, but that the larger fish can't be swallowed. The larger fish go to the fisherman. The fisherman and the cormorant work in a partnership: cormorant receives training and with the assistance and light at night (to attract fish to the surface), it finds it much easier to capture fish and feed itself, and in return for the fisherman's assistance, it gives the fisherman the larger fish while keeping the smaller ones. Similarly, the state and the citizen work in a partnership: the citizen receives training, strategic protectionism from unfair foreign competition, support with innovation and growth locally and globally, easier access to more and cheaper credit, nurturing by the state, and all else s/he needs to flourish, and in return, the citizen thinks of the nation's well-being and interests before all else, participates heavily in the building of the nation (e.g., through mandated national service, or voluntary time dedicated to building rail or cleaning up), produces high quality goods and services, pays taxes, may give an equity stake to the nation, takes a hit where necessary in the interest of the nation (e.g., as the Ethiopian public servants did when they each gave up one month's worth of salary to finance the finishing

⁹² Wangari Maathai, Interview, Amazon, 2010

of the 6GW Grand Ethiopian Renaissance Dam, when various foreign funders backed out due to political tensions with Egypt), ensures fellow citizens are doing all the above and that no foreigner is trying to sabotage the nation's progress and more.

- Set an example for other African nations: As we carry out all the above measures and more, we will become more united, self-confident and proud, and this will accelerate industrialisation and growth. Just as we have drawn from other nations in building unity and Swahili exceptionalism, so must we assist other African countries in strategising their way of doing the same. We could even, for example, spread the academic and professional use of Swahili (after we've built up the requisite knowledge base in it) throughout East Africa, other parts of Africa and the diaspora, as a way of uniting people and strengthening their senses of identity.
- Learn from other nations: The above is not an exhaustive list. As done above, we must continue to research what other nations have done to drum up a sense of exceptionalism and nationalism, and adopt what could work for us, and build upon it.

True nation-building is both extrinsic and intrinsic: as we build the external (industries, infrastructure and economy), we must simultaneously strengthen the internal (mindset, identity and confidence) values of our people. One without the other will inevitably lead to failure.

Chapter 10

Strategic Deployment of State-owned Enterprises (SOEs)

The term “state-owned enterprise” seems to have become a seriously frowned-upon word among the so-called “development experts.” They routinely ignore the fact that most countries that have rapidly emerged in the last century have had a strong state that is not only guiding, nurturing and strategically protecting the private sector, but also directly participating in production through an active state sector, SOEs, sovereign wealth funds and the like. Those who say that SOEs are inefficient seem to forget that Singapore Airlines, Emirates and Qatar Airways, routinely voted the best airlines in the world, are all wholly state-owned enterprises. Those who say the state sector doesn’t foster competition ignore the fact that telecommunications in Vietnam is almost entirely run by three SOEs—Viettel (parent company of Halotel), MobiFone, VinaPhone—that all provide each other with extremely fierce competition, and each of which is owned by a separate ministry or government agency.

Those who say that corruption is rampant in the state sector ignore the statistics that show that corruption is just as rampant, and sometimes even more so, in the private sector as it is in the state sector.⁹³ Those who say that businesses are only run well by people who have a majority or close to majority ownership in the firm forget that most of the largest, multigenerational businesses in the world—Volkswagen, Apple, Total, Microsoft, Unilever, Allianz, Walmart, Nestle, Coca Cola, to name a few—have CEOs who have tiny equity stakes in the company (often less than 0.1 per cent, and sometimes none at all).

State sector production enables entry into high-risk industries that require the taking of a very long-term view. This was the case with Airbus, a collaborative effort among a few European countries, which realised that their individual private and state airplane-producing companies were no

⁹³ Ha-Joon Chang, *Bad Samaritans: The Myth of Free Trade and the Secret History of Capitalism*, 2008

match for America's Boeing, but together, their state-backed entity could pose a serious threat, as they have since done.

Similarly, state-owned oil and gas companies have led to the economic emergence of many nations across the world, including UAE, Qatar, Norway, Kuwait, Saudi Arabia, Venezuela, Malaysia and Angola. The reality is that if these countries had not pursued their oil and gas through a consolidated, directed state-owned approach, and had instead waited for the local private sector to somehow magically emerge to challenge oil majors, they would be left in a situation like that in Nigeria today, whereby these foreign oil majors continue to ruthlessly exploit the nation's reserves, leaving only crumbs behind (and a few local oil barons, but with minimal impact on the state's general well-being).

Not only does an active investing state normally allow for investing in higher-risk, longer-term, better-consolidated projects, but also the profits from these state sector entities go directly to the state, which can then use some of the money to finance infrastructure projects, higher quality education, and better healthcare services. In Malaysia, for example, the profit before tax of Petronas in 2012 was US\$ 21 billion, taxes paid to the state were US\$ 9.4 billion, and dividend to the state for use in budget amounted to US\$ 6.9 billion (56 per cent of net profit attributable to shareholders was given as dividends).⁹⁴ The US\$ 16.3 billion generated from Petronas would more than cover Tanzania's entire US\$ 13.4 billion government expenditure for 2016-2017. Put differently, the dividends of just one SOE like Petronas would cover half of Tanzania's 2016-2017 national budget: instead of this giant sum of dividends going into the hands of a few individuals, it can instead be used for the betterment of all the people of the nation. It is impossible to obtain large amounts as these in the form of taxes from an individual company or in the form of royalties from foreign investors (as we know very well from our unpleasant experiences in gold mining), given how they constantly figure out legal and non-legal loopholes through which to manoeuvre, and also by the simple fact that a private entity's mandate is to its shareholders, and not to a nation of people.

10.1 Examples of Actively Investing States and their SOEs

10.1.1 China

- | | |
|-------------------|--|
| 1. Sinopec | 2. Industrial and Commercial Bank of China |
| 3. FAW Automotive | 4. China Mobile |
| 5. PetroChina | 6. CNOOC |

⁹⁴ "Annual Report 2014", Petronas, 2014

7. China Construction Bank
8. China State Construction Engineering
9. Bank of China
10. Sinochem
11. Dongfeng Motor
12. China Investment Corporation (sovereign wealth fund; assets of US\$ 746 billion)
13. SAFE Investment Company (sovereign wealth fund; assets of US\$ 470 billion)

As of 2011, 35 per cent of business activity and 43 per cent of profits in China resulted from companies in which the state owned a majority stake.

10.1.2 France

1. Peugeot (14 per cent)
2. Airbus (12 per cent)
3. Orange (13.2 per cent)
4. GDF Suez (35.9 per cent)
5. Air France-KLM (16 per cent)
6. Renault (15.01 per cent)
7. Thales Group (27 per cent)
8. STMicroelectronics Holding (50 Per cent)
9. SNCF (railway)
10. Radio France
11. Electricite de France (84.4 per cent)

10.1.3 Germany

1. Volkswagen Group (20 per cent)
2. T-Mobile (32 per cent)
3. Airbus (12 per cent)
4. Commerzbank (15.6 per cent)
5. KfW Bank (100 per cent)
6. Deutsche Bahn (railway)
7. Deutsche Sparkassen

The Sparkassen system—where more than 400 German SOEs hold more than 40 per cent of bank assets in Germany—and many smaller SOEs are owned by individual states of Germany.

10.1.4 Malaysia

1. Petronas
2. Khazanah Nasional (sovereign wealth fund; assets of US\$ 35 billion)

3. CIMB (bank)
4. Malaysia Airlines
5. Telekom Malaysia

10.1.5 Norway

1. Statoil
2. GPF (sovereign wealth fund; assets of US\$ 870 billion)
3. Telenor
4. Vinmonopolet (alcohol)
5. NSB (railway)
6. NRK (broadcasting)

10.1.6 Singapore

1. Singapore Airlines
2. SingTel (telecommunications)
3. ST Engineering
4. Temasek Holdings (sovereign wealth fund; assets of US\$ 200 billion)
5. Government of Singapore Investment Corporation (sovereign wealth fund; assets of US\$ 340 billion)
6. MediaCorp

10.1.7 Taiwan

1. Wang Film
2. CSBC Corporation
3. CPC Corporation
4. Aerospace Industrial Development Corporation

The SOE sector accounted for 57 per cent of industrial production of Taiwan in 1952, and this SOE proportion gradually reduced to the current 16 per cent of GDP in recent years. However, it reduced not through privatisation, but instead by nurturing the private sector to grow (as is the case in most other countries).

10.1.8 United Arab Emirates

1. Emirates Airlines
2. Emirates National Oil Company

3. Abu Dhabi National Oil Company
4. TAQA (energy)
5. Abu Dhabi Investment Authority (sovereign wealth fund; assets of US\$ 792 billion)
6. Investment Corporation of Dubai (sovereign wealth fund; assets of US\$ 196 billion)
7. Abu Dhabi Investment Council (sovereign wealth fund; assets of US\$ 110 billion)
8. TRA (telephone)

10.1.9 Vietnam

1. Viettel
2. MobiFone
3. VinaPhone
4. Bank for Investment and Development of Vietnam
5. Petrolimex
6. PetroVietnam
7. State Capital Investment Corporation
8. Vietnam Airlines
9. Vietnam Railways

10.2 Potential Opportunities for State Engagement in Economy Through SOEs

Tanzania must learn how to build successful state-owned enterprises from all these experiences, and the country must choose carefully in which sectors to delve. The ones we should definitely consider building include:

10.2.1 Oil and Gas

This one is obvious, and hopefully TPDC/Petrotan are learning from all the firms in other nations.

10.2.2 Banking

China's Industrial and Commercial Bank of China, China Construction Bank and the Bank of China, Vietnam's Bank for Investment and Development of Vietnam, Ethiopia's Ethiopia Development Bank (and Germany's system) provide us with excellent examples of state-owned financial institutions that

can be emulated. One wonders why we don't have a state-owned industrial/development bank that focuses on lending to build industry, and a state-owned construction bank focusing on infrastructure development. Sadly, our commercial banks go for easy, less risky wins instead of more difficult, longer-term, higher-risk options, which is why we need state intervention. Our state-owned banks should lead the way for industrialisation and economic transformation under our industrial policy, and commercial banks should also be mandated to do the same, as in China, where Chapter IV, Article 34 of the 1995 Law of the People's Republic of China on Commercial Banks states:

A commercial bank shall conduct its loan business in accordance with the need for the development of the national economy and social progress and under the guidance of the state industrial policy.

10.2.3 Telecommunications

China's China Mobile, Singapore's SingTel, France's Orange, Vietnam's Viettel, MobiFone and VinaPhone are extremely lucrative businesses, and if we look across to nations in North America, Europe, Middle East, Indian Subcontinent, East and Southeast Asia, they all have local telecommunications companies (mobile phone service providers), whether state-owned or private. In Africa however, we allow foreign telecommunications companies to make tremendous amounts of money off our citizens, and to repatriate most profits to their mother countries. The state should lead the way and establish a telecom mobile services provider, and if we need to restrict usage of other foreign telecom providers to enable the state company to grow, then this must be done. Vietnam, not too far ahead of us, shows us that it can be done, and done so well that now we have their Halotel here in Tanzania.

10.2.4 Construction

Examples of successful SOEs in this sector include China's China State Construction Engineering, Singapore's ST Engineering and the US's Army Corps of Engineers. We do not have major, sophisticated construction companies in Tanzania, which is why so many projects, large and small, are handed to the Chinese. State intervention here is key; we can and should build a national engineering and construction company, which must partner up with Chinese companies from the get-go on all projects that are normally solely assigned to them so that we can quickly build local capabilities and thereafter be able to do major projects ourselves. This should also include railway and energy engineering and construction in addition to the regular road and building construction.

10.2.5 Automotive industries

Examples include Germany's Volkswagen, France's Peugeot and Renault, China's FAW Automotive and Dongfeng Motor, Uzbekistan's Uzavtosanoat, etc. The long-term, risky, R&D-heavy nature of this industry, along with the short-term, quick-profit view of the local private sector, as well as the flooding of our markets with cheap foreign cars, will ensure that we will never have a car/automotive producer unless the state intervenes in this market sector. Here, we can follow Uzbekistan's example (and South Korea's, Japan's, China's, etc.) of a successful, capital-intensive automotive industry at an early stage in our growth trajectory.

10.3 Operating Successful SOEs is Easier Said than Done

To ensure that SOEs are highly effective, they should participate in the same rigorous processes faced by any effective entity in the economy in terms of recruitment of top talent, strict regulations, quality measures, in-depth auditing, design and marketing, competition and others. In some instances, local competition will have to be limited (e.g., in the case of a successful TPDC/Petrotan). With limited resources, we have to focus on building one major oil company like Petronas, Statoil, Sonangol, or any other, but in these scenarios, we must continuously benchmark against the likes of Petronas and Statoil, in order to reach global standards. For example, if a potential recruit seems to have some good qualifications, we should not be asking, "Would TDPC hire this person?" since we have not reached global standards at this early stage in our oil and gas life; we should instead be asking, "Would Statoil hire this person?" and thereafter follow through.

It is true that state-owned enterprises have in the past been mismanaged, but we should not be fooled by neoliberalism into believing that the private sector is the only way to produce effectively in a nation. Indeed, we need not look any further than our very own National Housing Corporation (NHC) that has been completely turned around from a mismanaged and failing SOE into a highly effective and booming SOE that is now the largest real estate company in Eastern and Central Africa. At the core of this transformation were people and effective systems.

NHC is proof that privatisation is not the panacea for managing of failing companies. On the contrary, it proves that properly managed SOEs can become very successful right here in Tanzania. For that to happen, however, we must urgently reform the way we manage our SOEs and create a new fit-for-purpose SOE Governance Framework.

10.3.1 The Status Quo of SOE Governance in Tanzania

A quick look at the performance of Tanzanian SOEs over the past thirty years will show that the country has all but failed to manage its SOEs well. Almost all wholly owned SOEs have been characterised by long periods of poor financial performance, lack of investments, lack of clear operational mandates, lack of proper oversight, reputation issues, political interference, inefficiency, corruption and waste of state resources.

We believe that the absence of a clear legal, financial and administrative framework to provide a context within which SOEs are managed and supervised is at the heart of the problems ailing the SOEs. What is missing, therefore, is an effective corporate governance framework for our SOEs.

10.3.2 The South African Experience

At the time of independence in 1994, South Africa faced similar problems with its SOEs that are reputed to have accounted for as much as 40 per cent of the country's GDP at the time. In order to deal with this problem, the newly elected ANC-led government published a document called the "Protocol on Corporate Governance in State Owned Enterprises". (The full document is available on the following weblink: http://www.gov.za/sites/www.gov.za/files/corpgov_0.pdf). Below, we have reproduced an extract from that document that we believe can provide the basis for our recommendation to adopt that model for Tanzania.

... In 1994 upon the election of a democratic majority government, the Government found that some of the instruments for delivering necessary services and carrying out policy were actually SOEs, and their control and governance was not based on any standardised principles or rules. These SOEs were organised in many different ways and subordinate to a wide range of legislation and statutory regulations. Some SOEs, in fact, acted as autonomous entities, having not had substantive direction or control from the previous Government for a long period of time.

South African SOEs form a significant portion of vital industries that drive the economy by providing factor inputs. Three key inputs, electricity, transportation and telecommunications are dominated by SOEs. Without these key SOEs, the resources, tourism, information technology and manufacturing sectors, inter alia, could not function effectively. These sectors are principal drivers of the formal sector economy, and provide for the bulk of economic growth.

... Essentially, this policy recognised the need to inculcate efficiency within the SOEs while concurrently ensuring that social and infrastructural goals were met.

In this context, the proper governance and control of SOEs became an important component of the restructuring process. The magnitude of this task cannot be overestimated, given the aggregate size of SOEs and their contribution to the Gross Domestic Product. These SOEs are the principal entities that deliver many social goods and services to ensure quality of life of all South Africans.

The publication of the King Report⁹⁵ first in November 1994 and secondly in March 2002 has given further impetus to the issues of governance not only in SOEs, but also in the full range of business entities.

In 1999, the Government affirmed the overall strategic vision of the restructuring of SOEs. The Department of Public Enterprises was given an expanded mandate to lead the programme of restructuring with the active participation of the Cabinet. Corporate governance, as embodied in the new and revised Protocol, is one of the cornerstones of this strategic vision. It is the Government's intent that the principles of this Protocol should apply to the public entities and their subsidiaries, which are referred to in paragraph 4.4 within the Protocol on Corporate Governance in State-owned Enterprises.

Other public entities, which have not been specifically mentioned in this Protocol, are also encouraged to adopt, to the extent possible, the principles enunciated herein. Corporate governance embodies processes and systems by which corporate enterprises are directed, controlled and held to account.

The Protocol was first published in 1997 with a view to inculcating the principles of good governance in the SOE's and this Protocol constitutes a substantial revision thereof in light of the King Code and international developments. The principles enunciated herein are specifically intended to apply to the entities referred to in paragraph 4.4 within the Protocol on Corporate Governance in State-owned Enterprises. Accordingly, unlike the King Code, which covers a wide spectrum of entities in both the private and public sectors, the Protocol seeks to provide guidance specifically to the public sector, taking into account the unique mandate of the SOE's, which includes the achievement of socio-politico-economic objectives of the Government.

⁹⁵ Corporate governance in South Africa was institutionalised by the publication of the King Report on Corporate Governance in November 1994, which report has subsequently been superseded by the King Code of 2002. The purpose of the King Report is to promote the highest standards of corporate governance in South Africa. The Code of Corporate Practices and Conduct contained in the King Report applies inter alia, to SOEs and agencies that fall under the PFMA.

It is recognised further that since the King Code is of general application, there are various specific public sector related issues, which may not be fully addressed therein and which required these issues to be addressed in the Protocol. It should, therefore, be understood at all times that the principles of the Protocol only seek to amplify and not supersede (or conflict with) those contained in the King Code and that the Protocol should, in fact, be read in conjunction with the King Code.

The Government, as a major shareholder in SOEs, faces a wide range of risks associated with the operations of SOEs, including financial, reputation, political and operational risks. It is the responsibility of each Executive Authority (in whom the primary responsibility for appropriate SOE oversight and accountability to Parliament rests) to ensure that these risks are identified, reduced and managed. In this regard, a key requirement of SOEs is to report and account for their performance to the relevant Executive Authority in respect of financial and non-financial matters, at the same time, however, maintaining independence in the conduct of their duties and free from day to day involvement by the Executive Authority. In order to ensure that there are no actual or perceived conflicts of interest and that SOEs achieve the Government's broad policy objectives and ensuring that the SOE's boards operate efficiently and effectively, the Government would like to spell out its intentions and envisaged relationship with SOEs in this Protocol, Shareholder Compacts and Policy Framework for SOE released by the relevant Executive Authorities from time to time.

SOEs operate within the framework of a variety of legislation including, inter alia, PFMA (which is part of Government's broader strategy to improve financial management in the public sector), Companies Act 61 of 1973, as amended and the relevant legislation under which an SOE operates. It is, therefore, important that directors of SOEs develop working knowledge of this framework and ensure that the SOEs comply with their legal obligations...

The major recommendation from the South African experience is that there is a strong need for the centralisation of the oversight of all SOEs under one cabinet level ministry in order to provide the sector they constitute with appropriate visibility at cabinet level and to ensure that the risk associated with their operations is properly and effectively managed.

The adoption of the King Code as a basis for providing governance oversight to Tanzanian SOEs is also recommended. According to the King Code, governance is defined as the exercise of ethical and effective leadership by the governing body, the Board of Directors.

Such leadership includes four overarching responsibilities of the governing body:

1. Providing strategic direction
2. Approving policies to put strategy into effect
3. Providing informed oversight of implementation and performance
4. Disclosing

Ethical and effective leadership should result in the following beneficial governance outcomes for the organisation:

1. An ethical culture
2. Sustainable performance and value creation
3. Adequate and effective control by the governing body
4. Protecting and building trust in the organisation, its reputation and legitimacy

Finally, we would like to recommend the enactment of the equivalent of the South African Public Finance Management Act with very clear provisions in which the principles of good corporate governance of SOEs are embedded and the financial and operational independence of the SOEs are guaranteed.

10.4 Summary of Recommendations on SOE Governance:

1. Establishment of a cabinet level ministry (or supranational governing agency) of State Owned Enterprises
2. Adoption of a Corporate Governance Protocol based on the South African model
3. Adoption of the King Code (currently in its 4th iteration) as the corporate governance guide for SOE oversight and guidance
4. Enactment of a Public Finance Management Act with clear provisions for effective SOE oversight.

Chapter 11

Policy Imperatives for Tanzania's Industrialisation Project

For this project to succeed, the government will have to undertake a comprehensive review of all the laws, institutional design, coordination, resourcing, leadership and delivery monitoring mechanisms currently in place, and come up with a new, bold and ambitious framework that will make it possible for these industries to thrive.

As is clear, domestic producers require a period of active government support and partial insulation as they build up their productive capabilities and reach economies of scale. Just as the featherweight boxer does not fight a heavyweight boxer in the same ring, a nascent domestic producer cannot compete with a mature foreign producer from the get-go, and therefore requires, as Mwalimu Nyerere puts it, active nurturing by the state: “You protect the weak until they become strong before they can compete.”

As local producers become competitive, national support can be phased out, as deemed necessary. There are specific mechanisms that the state can use to boost both the quantity and effectiveness of private and state production, and to ensure the build-up of domestic productive capabilities. Some of these are detailed below, drawing from the works of Professor Ha-Joon Chang and Professor Justin Yifu Lin.

In general, it is key that we strategically protect and promote industries that are directly benefitting Tanzania in every manner possible, particularly in regard to sourcing materials from Tanzania and employing Tanzanians, and not simply by being locally registered and locally owned. For example, if a local producer is sourcing a natural resource from abroad, to be packaged here, and if this natural resource is abundantly available in Tanzania for a similar or slightly higher price, then this local producer should be using the resource from Tanzania.

Similarly, if there is Tanzanian talent available to operate within the industries, from the bottom all the way to the managerial top, then the producer should hire Tanzanians, and if Tanzanians in that field are not readily

available, then proactive steps must be taken, whereby non-Tanzanians are hired in the interim, but that Tanzanians are being trained, involved in the learning process, and ultimately placed in the spots occupied by the non-Tanzanians, in a smooth succession planning system, funded jointly by the enterprise and the government. Perhaps contracts will be needed to ensure that the Tanzanian trainees join the firm that partly paid for their training, and this needs to be worked out. If a producer does not meet the requirements of local sourcing and local employment/succession planning set by the government, the government should not provide support.

11.1 Tariffs, Explicit/Implicit Trade Restrictions to Promote Infant Industries

These tariffs and trade restrictions include the following: taxes targeted at imports, particularly in industries in which we want to foster Tanzanian producers; quantitative restrictions on imports for the same purpose; import standards smartly crafted, also for the same purpose; and, tariffs on particular raw material imports that can easily be produced locally or on raw material exports, for which there is a business case for local processing.

The tariff is perhaps the most commonly used tool to protect from foreign competition, for the simple reason that though we cannot control what happens in the markets outside our borders, we can control what the market looks like within our borders. For example, let's say we manage to make a good Tanzanian phone: we cannot ensure that the Tanzanian phone in the Kenyan market costs much less than the Samsung, and we cannot restrict the number of Samsung phones being imported into Kenya to leave room for the Tanzanian phone's sales; within Tanzanian borders, however, we can increase tariffs on the Samsung to nudge more people to buy the relatively cheaper Tanzanian phone, or we can simply restrict the number of Samsung phones imported. As demonstrated in the Industry Prioritisation section, there is very large domestic demand for several industries, and local producers can quickly become competitive in many of them, if only we provide them with a period of partial insulation from cheap imports flooding the local market (or sometimes, free imports, in the case of *mitumba*). This is why import substitution, when coordinated well, is an easy way to boost local industry.

We have seen the tariff used everywhere, including, as discussed previously, by the US recently, whereby it applied tariffs of 522 per cent on Chinese steel imports, to ensure the survival of the local US steel industry. Brazil's Law of Similarities (Lei do Similar Nacional) in the 1950s to 1980s stated that a product could only be imported into Brazil if it could be proven that a similar product was not produced in the country. Because of these

industrial policy measures, Brazil grew its production tremendously in agro-industries and others, and successfully entered many new industries such as petrochemicals, renewable fuels and the aircraft industry.⁹⁶ Wanting to build their exports of processed palm oil in the 1960s and 1970s, Malaysia put in place higher taxes on crude palm oil exports and tax exemptions on processed palm oil exports, greatly incentivising local producers to process, and to continuously upgrade industrial and technological capabilities; in 1975, Malaysia refined 10 per cent of its crude palm oil, and by 1994 (after successful implementation of these measures), Malaysia refined 99 per cent of it.

Another fascinating example is of China's outright ban on Google, Facebook, Amazon, etc. At first glance, this seems like the measure of a police state attempting to control information online, and this indeed is part of the reason. However, the larger reason is economic. If China let the American technological giants in earlier on, the nascent Chinese companies may not have had ample time to build capabilities and traction; and now, Baidu, Tencent and Alibaba are each currently valued at over US\$ 200 billion, on a par as their American counterparts Google, Facebook and Amazon. The amount of innovation spurred, employment provided, taxes collected and national pride derived make it well worth China's effort to nurture local technological giants instead of letting foreign ones flood in. Perhaps East Africa (there needs to be a large enough market) should follow suit in this tech path.

11.2 Subsidies, Tax Breaks for Particular Focus Industries or Activities

This can be done directly, for instance, as China often does, with its export subsidies and export tax exemptions for certain producers, and currency under-valuations for exporters in general. Or it could be done indirectly, such as the US heavily does, with upwards of US\$ 50 billion in national R&D funding granted to university professors who, in many instances, work in collaboration with the R&D arms of industry. An example of this is a situation whereby a group of STEM professors work on, say, improving the performance of a graphics card in a computer, in collaboration with researchers from Google and NVIDIA; so the industry benefits, while the university is seen as the one that received the funding. Tanzania can also, for example, agree to find and/or train qualified managers and tailors (and/or agree to cover the training costs) to attract large garment manufacturers. Subsidies can include subsidised loans from state-owned banks or regulated private banks. When attempting to boost the amount of cheap capital available

⁹⁶ Ha-Joon Chang, "Transformative Industrial Policy for Africa", Economic Commission for Africa, 2016

to certain industries, the Chinese government mandates a certain lending rate for private banks towards those industries, and if producers cannot obtain those rates, they are guaranteed those rates from state-owned banks.

11.3 Supra-National Coordinating Public Agencies, Public-Private Partnerships

These institutions are required in order to provide and assist in general technical needs, technology adoption and innovation, licensing policies, information services, export promotion, logistics support, R&D, infrastructure, and other productive inputs that cannot be provided by the relevant producers. There is a lot of nitty-gritty that the state, through specific agencies, can do to boost particular industries and to coordinate industrialisation in general.

11.3.1 Fundación Chile Model

A good example of a state agency that single-handedly jumpstarted a large industry, and from which we have much to learn, is Fundación Chile. Because of efforts from Fundación Chile, Chile went from producing a negligible amount of salmon in early 1980s to becoming the second largest producer in the world by early 2000s. Fundación Chile, a non-profit semi-public institution, was created in 1976 with a US\$ 50 million endowment, half of which was allocated by the Government of Chile, and half by ITT (International Telephone and Telegraph) of the US. Five key areas were selected, and Chilean professionals nominated to head them, with foreign experts being asked to provide advisory services.

Fundación Chile was especially successful in enabling technology transfer, domestication and innovation. The strategy they used was based on direct investment in pilot firms, which had to demonstrate the feasibility and applicability of their use of internationally available technologies in the Chilean context. Success in these pioneer firms would attract other Chilean companies to follow suit in technology adoption, spreading innovative technologies across the country. These pilot companies were often jointly created by Fundación Chile and existing private companies, which had mastered relevant technologies and had experience in marketing new products, and the sale of products of these joint-companies, and sale of the joint-companies themselves, would become a source of finance for Fundación Chile. In 1982, Fundación Chile acquired Domsea Farms, a small company, which specialised in aquaculture techniques, and revamped it into Salmones Antártica.

Fundación Chile coordinated a web of collaboration among the government, public sector agencies, private sector firms and their associations to ensure success: a joint venture between Chile's National Fisheries Service

(SERNAP) and Japan International Cooperation Agency (JICA) initially introduced salmon (a non-native fish) to Chile; the regional governmental planning institution of the XI Aysén Region (SERPLAC) financed the purchase of the first facilities for salmon farming by Fundación Chile; a public agency (CORFO) partly financed the first commercial farming venture in Chile capable of exporting to Europe, which was founded by professionals who had previously worked in government institutions such as IFOP (Fisheries Development Institute); an institution specialised in quality control and certification (Salmon Technology Institute / Intesal) was founded and helped establish the Chilean brand in the global salmon market.

In 1982, when Domsea Farms was acquired, Chile exported 300 tons of salmon; by 1988, Chile exported more than 250,000 tons; by 2002, Chile exported US\$ 1.2 billion worth of salmon, worth 35 per cent of the global market. An entire salmon cluster developed around the salmon industry, as firms that manufactured cages, produced refrigeration containers, provided transport services, etc sprung up. Through similar direct intervention by another agency, Chile has also become the world's fifth-largest exporter of wine.

11.3.2 Possible Role for NDC or Another State Agency

In Tanzania, we have National Development Corporation (NDC) and Tanzania Investment Centre (TIC), among others, but it is not clear what role each is playing, and whether all bases are covered. For example, do we have a world-class state agency like Fundación Chile that:

- Enables large-scale technology absorption and innovation, and the strategic use of patent laws and intellectual property rights laws for this purpose?
- Directly engages in the building of world-class industrial value chains in Tanzania through, for example, jointly investing in pilot, innovative firms to spearhead growth and technology transfer (i.e., taking action, and proactively bringing investors to the table for a strategic industry instead of waiting for a private sector firm to magically do everything)?
- Coordinates collaboration among the government, public sector agencies and domestic enterprise? That ensures product processing and packaging are done at global standards?
- Ensures the products are actually reaching shelves in local, regional and global markets?

Industrialisation success is not going to be achieved merely by fostering foreign investment in Tanzania to boost GDP by a few points; it is going to happen only by building domestic productive capabilities, and that takes

much more than simply helping foreign investors get through regulatory frameworks in Tanzania.

11.3.3 Possible Role for TIC and Tanzania Export Promotion Board

Do we have a world-class state agency like Japan External Trade Organisation (JETRO) and Korea Trade Promotion Corporation (KOTRA) that deals in export promotion, marketing of domestic products, facilitation (such as, helping figure out logistics, where necessary), even helping in designing packaging which builds a globally renown and respected Tanzanian brand?

11.3.4 Possible Role for the Planning Commission

Do we have a small, lean, efficient, independent, world-class supra-national agency that coordinates all ministries and organisations involved in industrialisation, plans, drives and oversees all development projects, works under and reports directly to the President, like Singapore's Economic Development Board (EDB), Rwanda Development Board (RDB), France's Planning Commission, Korea's Economic Planning Board (EPB) or China's National Development and Reform Commission (NDRC)?

If industrialisation is an orchestra, this agency is the conductor.

If our nation is a corporation, this agency is the Office of the CEO.

11.4 Recognition, Support of Pioneer Firms and National Champions

We likely have some domestic firms that have spontaneously and successfully entered some of the strategic industries that we want to build, and we should support them further and help them scale. We should identify constraints to growth, quality upgrading, and further firm entry among others, and take action to remove these bottlenecks. We may even award these pioneer firms for their services to the nation as per Professor Justin Yifu Lin's suggestion:

If firms discovered new industries by themselves, the government may award them with special recognition for their contributions to the country's economic development.

Enabling pioneer firm success can go a long way in boosting an entire industry. For example, due to strategic support from the government of Ethiopia to a single pioneer firm in the cut flowers industry, Ethiopian cut flower exports increased from 3 tons in 2004 to more than 50,000 tons in 2012, export earnings rose from US\$ 0.32 million to US\$ 200 million, and the industry grew from that original pioneer firm to over 100 firms, with employment growing to over 50,000.⁹⁷ The pioneer farm, Golden Roses,

⁹⁷ "Light Manufacturing in Africa", World Bank, 2012

faced a lot of initial challenges, which were only overcome through direct intervention from the government. Golden Roses struggled to find 7 hectares of usable land, and was quickly granted a 30-year lease by the government on a piece of land, and because private banks were unwilling to lend to a new venture in Ethiopia, the state-owned Ethiopia Development Bank provided a loan for 30 per cent of the project (US\$1 million) at 8 per cent interest.

To ensure reliable water supply and management capability, Golden Roses had to look to Israel and Kenya. Golden Roses instantly made a profit, and based on this success, Prime Minister Meles Zenawi decided to support the industry by providing: easy access to land, tax incentives, duty-free imports for technology, and long-term financing for up to 70 per cent of the initial investment. With the demonstration effect and government support, investors poured in. The cut flower industry resulted in compounded growth through backward linkages to production of packaging for products and forward linkages to cold chain logistics and air transport, and also helped bring about an associated expansion of horticulture.

Entrants into any new industries normally face major costs and risks, particularly in situations where infrastructure is limited, financing is difficult to access, organisational and technological capabilities are still small, and the regulatory framework is difficult to deal with, as is the case with sub-Saharan Africa. This Golden Roses story, however, shows how the government can intervene to boost pioneer firms, and how a single pioneer firm can be a catalyst for an entire industry through the demonstration effects and information spillovers it provides for other potential entrepreneurs, as well as the growth in specialised infrastructure and skills, policy reforms, forward and backward linkages, and country brand, all of which can be shared by many others.

11.5 Buy Tanzanian Campaign, Government Procurement Policies

We should create a “Buy Tanzanian” campaign that encourages Tanzanians to buy Tanzanian products. As mentioned previously, demand drives production, and we have a market of 50 million people, and innumerable entities, consuming products. This campaign could be carried out in various ways, including promotion through the media, attaching “Made in Tanzania” tags to Tanzanian products in shops and supermarkets to denote the origin; more shelf visibility; bonus points for every Tanzanian product purchased and other marketing techniques for this purpose. This may sound like rigging the markets, but just as some people attach more value to a foreign product just because it is foreign and of a supposedly higher quality, it should not be a problem to attach more value to a local product because of national pride

(and hopefully, close to similar quality). Japan is one of the many countries that heavily practise this economic patriotism (embedded from a young age), whereby Japanese will always prefer to buy Japanese products, even when they are visiting, say, Germany. In the United States, one often sees stickers on cars that proclaim “Be American, Buy American”.

A recent study of Tanzanian manufacturers summarises the situation and solution well:

In Tanzania, there is a tendency for consumers to be more skewed towards the consumption of imported goods rather than the domestically produced. Manufacturers argued that both public and private consumers have not given domestic goods their due weight, thereby adding an unnecessary burden on the domestic firms. The contention is that some imported goods, although of lesser quality, sell at higher prices than domestically produced items. Manufacturers stressed that the procurement policy of public institutions and even private entities has to favour commodities produced in the country. Imported goods should be considered only when there is shortage of the required products within the country. Nurturing an attitude towards the consumption of Tanzanian produced commodities is a strategic way of boosting domestic markets. Domestic products must be at the top of the shopping list except when buyers are totally convinced that there is a reasonable difference in quality. The pro-domestic attitude should be propagated not only to institutions but also to the general public to enable Tanzanians [to] create markets and jobs for themselves.⁹⁸

As discussed, the government is the single largest entity and market in the country that demands products, and in 2016-2017, government expenditure is set to be \$13.4 billion. It makes little sense that the products the government uses, many of which can easily be made in Tanzania, are imported. Instead, government off-taker contracts and procurement can be a tremendous boost to industries to get their first products out the door. President Magufuli has already pointed out that this will be happening in his speech to the private sector, where he gives the example of producing government furniture and asks which local company will pick up the contract:

*Tayari nimekwishatoa maelekezo kuanzia sasa fenicha zote za Serikali zisiagizwe nje tena, naomba niulize; ni nani kati yenu hadi sasa amejiandaa kuchukua nafasi hiyo ya kutengeneza fenicha za hapa kwetu kwa kutumia malighafi zetu, zenye ubora unaotakiwa na Serikali ili Serikali iwe inanunua au kuagiza kutoka kwake?*⁹⁹

⁹⁸ "The Performance of the Manufacturing Sector in Tanzania: Challenges and the Way Forward", Brookings Institution, 2014

⁹⁹ John Magufuli, Speech to the Private Sector, 2015

The guaranteed local demand will provide local producers and potential entrepreneurs with the opportunity to grow and reach economies of scale, and begin to venture into the rest of the African market. As in all other cases, we must ensure that the raw materials, if readily available in Tanzania, are not being imported, and that there is mostly Tanzanian employment, and that, if this is not the case, then the product is not considered Tanzanian, and cannot be part of the “Buy Tanzanian” campaign.

11.6 Experimental Cities, Industrial Clustering, SEZs

Building outstanding infrastructure across Tanzania and improving the business environment for the entire economy will be very costly and difficult to carry out well. Special economic zones (SEZs) and industrial parks (IPs) enable the state to implement industrial policy and boost business at a more manageable micro way, allowing for:

1. Focusing of our limited budgetary resources
2. Easier management and monitoring of the industrialisation process and domestic capabilities build-up
3. Experimenting and learning before scaling
4. More flexibility in shifting around policies

Beyond ease for the state, industrial clustering results in significant productivity gains for firms because of the following reasons:¹⁰⁰

1. A thick labour market
2. Information and knowledge spillovers
3. The ability to share common overheads and services
4. The opportunity to observe customers and competitors closely

Most economies that have emerged over the past 50 years have used SEZs, but perhaps the most instructive example of the impact of state-directed industrial clustering is China's Shenzhen.

As mentioned previously, in 1980, Deng Xiaoping designated Shenzhen as China's first SEZ, where China would experiment with market capitalism that was guided by the ideals of Chinese socialism. Shenzhen's economy grew at 40 per cent every year between 1981 and 1993, and the 30,000-person fishing village gradually turned into the 11-million-person technology-manufacturing hub of the world that it is today, with a city GDP of US\$ 270 billion (six times that of all of Tanzania).

¹⁰⁰ John Page, "Can Africa Industrialise?", *Journal of African Economies*, 2012

Shenzhen first started out as a manufacturer for international technology companies, but state emphasis on capabilities transfer has made Shenzhen the home of China's most successful high-tech companies including Huawei, Tencent and ZTE. Studying Shenzhen's early successes and failures, the Chinese government gradually built another 1000+ industrial and economic zones and parks across the nation, and it is safe to say that the Chinese miracle started in Shenzhen.

Successful industrial parks and zones provide enterprises with good infrastructure (roads, energy, water, communication), security, streamlined government regulations, affordable industrial land, technical training, low-cost standardised factory shells, free and good housing for workers next to the plants, and in some instances, even market analysis, accounting, import/export information, management support, recruiting and legal assistance.¹⁰¹ By setting up plug-and-play factory shells, the government saves firms the need to finance the construction of factories and enables them to instead use the money to get the businesses off the ground more quickly, and this is especially important for small and medium enterprises, for whom it is difficult to even obtain large loans in the beginning, and, hence, they normally have little chance of growing, which is why there is the so-called "missing middle" (shortage of medium-sized firms) across sub-Saharan Africa. Similarly, across Africa, workers spend a large amount of their incomes on food, transport and housing, and thus, housing in or very near the parks/zones enables workers to save much larger amounts of money to support their families better and maybe even to fund a potential entrepreneurial venture. Focus within parks can also be quite specific – for example, "China's parks focus on specific industries, such as leather and textiles in Nanchang, furniture in Ji'an, and electronics in Ganzhou."¹⁰²

The industrial clustering story has been much less successful in Africa, with low levels of investment, exports and employment. In Tanzania, for example, SEZs contain about 40 firms and employ a mere 10,000, whereas Vietnam has 3,500 firms in its export processing and industrial zones, employing 1.2 million workers. FYDP II seems to want too many SEZs, thereby diluting the emphasis on each one – for example, the planned SEZ at Bagamoyo is slated to attract 10 firms and employ 20,000 by 2020, in Mtwara: 8 firms and 250 employees, Kigoma: 5 firms and 200 employees, Tanga: 5 firms and 100 employee, Ruvuma: 2 firms and 100 employees, Manyoni: 1 firm and 20 people. This would bring our total numbers up to about 31,000 employed in SEZs, not a particularly promising number, when President Magufuli wants to have 40 per cent of the Tanzanian labour force (26 million), or about 10 million people in industry by 2020.

¹⁰¹ "Light Manufacturing in Africa", World Bank, 2012

¹⁰² Ibid

Many studies confirm that African SEZs are under performing because of poor planning and implementation, with many of them being hastily initiated without careful studies of market demand, potential industries or strategic long-term planning. A clear result of this is the lower quality of infrastructure and institutions. For example, African SEZs have 44 hours of power outages in a month, whereas non-African SEZs have 4 hours of power outages; similarly, customs clearance takes twice as long in African SEZs (7.1 days) as in non-African SEZs (3.4 days). Rolling out top-notch infrastructure and institutions across the nation right from the get-go is impossible, but focusing on first getting them right in carefully selected and planned industrial zones is realistic and possible, and should, therefore, be given more emphasis.

Table 13: *Indicators of physical and institutional infrastructure in SEZs*¹⁰³

	Average Africa sample	Average non-Africa sample
Power outages (in hours downtime)		
Within SEZ	44	4
Outside SEZ	95	46
Import customs clearance times (in days)		
Within SEZ	7.1	3.4
Outside SEZ	10.3	11.0

Another major issue is the limited linkages to the domestic economy and limited transfer of capabilities: most African SEZs are export-processing zones (EPZs), focussed on FDI with little thought to domestic participation. With few domestic firms operating within the EPZs and/or participating in the value chains (e.g., as equipment or input suppliers), there is little learning and little capabilities transfer. Similarly, for successful domestic skill transfer and build-up, the state needs to collaborate with firms in SEZs to ensure training and preparation of Tanzanians to ultimately take over the running of the entire operation. The focus should be on high-skill middle to top-level labour, such that, if the firm decides to move to another country or if these Tanzanians decide to move out of the industrial zone, the domestic economy receives people highly trained in organisational and technological capabilities capable of running/launching/growing large complex businesses. However, this type of succession planning hardly ever occurs, and right now, Tanzanians are hired only at the lowest levels, limiting the spillovers of skills and capabilities into Tanzania.

¹⁰³ John Page, "Can Africa Industrialise?", Journal of African Economies, 2012

The idea that SEZs are less about adding points to GDP and more about capabilities build-up is exemplified in the case of Sri Lanka, which was among the first in the world to start an EPZ in 1950s, attracted FDI, but took few measures to adopt and upgrade capabilities, whereas South Korea and Japan, which began EPZs right after, ensured learning and upgrading, and went on to create multinational conglomerates.

11.7 Create Lists and Spread Information about Business Opportunities

While we like to think markets are efficient and the spread of information is perfect in today's age, the reality is that it is not, and it is often the case that people simply do not have information on potential business opportunities or support from the state. With regard to industrial policy, we need to provide information about business opportunities, and high potential industries and sectors. Banana cooperatives, for example, may simply not know that there is a market for banana fibre sanitary pads; they may not know that they can process their banana fibres into sanitary pads, and may not know where to acquire machines to process this banana fibres. Or a producer may simply not want to make toothpicks because imported Chinese toothpicks have flooded the market, and without the government informing the nation that it has placed tariffs on toothpicks to boost local production, a local producer may end up not entering because of the lack of information.

For industrialised and industrialising economies, information flow from networks is vast, whereas this is not the case in African countries. Studies show that in China, for example, enterprises are much more likely to credit their business acquaintances, experts, equipment suppliers, clients and employees as sources of help and knowledge in creating and growing a firm, whereas in African countries, entrepreneurs mostly credit themselves. With a limited industrial base, we have a limited network effect and limited flow of information on opportunities, and the state needs to step in to fill this gap.

One simple but powerful way is to literally make a list of all products within proposed industries, which we know we are competitive at producing or can quickly become competitive, and to flag these opportunities to the Tanzanian people and the domestic productive sector in general through the radio, newspapers, TV, Internet and social media, and make a case for why Tanzanian companies should invest there, and exactly how these companies will be supported through partial state protection, subsidies, export promotion, training of workers, government procurement, etc.

11.8 Encourage Investments, Careers in Industry for Indigenous Tanzanians

It is noteworthy that the majority of indigenous Tanzanians who have come into significant wealth over the last two decades, have invested their money in real estate and in some cases, in farms that have not been developed to full operation. Very few if any have invested in industries.

The main reason behind this fear of engaging in industrial activities is a combination of risk aversion and a “can’t do” mindset that sees industrial activities as something in which only the non-African communities (Asians, Arabs, Europeans and Chinese) can thrive. Even African engineers and others vested with technical skills that are relevant to the building of industries shy away from investing or pursuing careers in the industrial sector. They prefer instead to join politics, to open retail shops, to rear cows, chicken and pigs or, as said earlier, to put their money in buildings.

To make matters worse, popular interest in technical studies that lead to careers in industry has also dropped sharply over the same period. Thousands of young graduates coming out of universities both here and abroad have chosen to become accountants, lawyers, social scientists and salespersons. Tanzania’s industrial project will only succeed if we can change this negative mindset towards the industrial sector as an investment avenue and also to re-orient the interest of our young people in schools and colleges towards science subjects.

As discussed in the Swahili exceptionalism section, what occurs within the minds of individuals has a powerful impact in their real lives. If the youth believe that their people are born great and are brilliant, hardworking and very successful in their lives, that their history is rich, that they are set up to succeed, these people often feel more confident, are much likely to take risks for the better and push the boundaries of whatever they do.

Similar to this is the Silicon Valley phenomenon of the tech industry, where a student of 21 years can drop out of university, head to California, find the necessary support and financing, grow a team, and build a social network company worth over US\$ 200 billion today.

There is a tech craze for the past 20 years in universities all over the US, where students are willing to give up traditional paths of prestige and stability in finance, law and medicine, and pursue something exciting and risky in technology. While some are driven by a true love for programming, the reality is that the majority are attracted by this “cool” phenomenon of Silicon Valley. The same is true for tech communities in Shenzhen, China. It is “sexy” to be a tech founder in the US and China (and now, in many other

parts of the world), often regardless of what that product/application even does.

Tanzanian youth will propel our industries, and we should learn from this tech phenomenon, and see how we can make the manufacturing industry a “cool” or “sexy” thing for the youth to pursue. We should encourage them to pursue it. Just as in tech in Silicon Valley, many industries may sound as if they would be ill-befitting for a young, respectable student to pursue, but s/he will pursue it nonetheless because of the hype, and because s/he would be titled, an industrialist.

It is especially important for us to focus on the youth and shed all forms of ageism because our population is overwhelmingly young, with 80 per cent of our population under the age of 35. They are the ones who will drive our society and economy forward, today and tomorrow.

11.9 Coordination of Complementary or Competing Investments

In many industries, it is the case that there are too many small firms, that production is too fragmented, that economies of scale are difficult to achieve. If there are many SMEs in a particular strategic sector, but none is scaling and overall they could do better by having a few large firms than by having many small ones, then we should encourage strategic merging (or major collaboration) of these smaller entities into larger jointly-owned enterprises.

When speaking with contractors recently, President Magufuli spoke about exactly this kind of collaboration and consolidation, particularly since there is no large Tanzanian construction company such as Group 5 of South Africa or CRJE of China.¹⁰⁴ This approach should be extended across Tanzania and across industries.

Some industries (such as, mobile phone company or car industry) will be impossible to launch as small, fragmented entities. The governments of Japan, South Korea, China and others are heavily involved in mediating mergers that are strategic to the nation. In China, for example, in order to develop a national team of enterprises in strategic sectors, “the Chinese state has initiated many mergers and acquisition (M&A) by administrative decree... State-mediated consolidation of smaller, uncompetitive firms in the electronics industry led to the formation of larger companies, such as China Electronics Corporation (1989) and SVA Group (1995).

China Electronics Corporation recently (in 2013) acquired the Irico Group, SOE manufacturing photovoltaic equipment. According to the Ministry of Industry and Information Technology (MIIT)’s Guidance on

¹⁰⁴ Rose Athumani, "State Supports Local Contractors", *Daily News*, 2016

Corporate Mergers and Acquisitions to Accelerate the Growth of Key Industries, issued in January 2013, the Chinese government at the moment aims to grow global champions in the automotive, iron and steel, cement, shipbuilding, aluminum, rare earth metals, electronics and pharmaceutical industries.”¹⁰⁵

It is crucial, however, to ensure internal competition. As mentioned previously, the two largest conglomerates in Tanzania do very similar things, and are spurred on to be competitive by foreign competition, but also, and perhaps to an even larger extent, by competition between the two of them. We must, therefore, have multiple furniture companies competing to provide for the government procurement orders, and we should most definitely spread the order between two or more.

Inter-sectoral dialogues on this issue can be hosted regularly through avenues such as the CEO Roundtable or NDC.

11.10 Formal and Informal Regulation of FDI

Among Tanzania's list of industries to build out, some potential targets may be new to domestic firms or domestic firms may not have the capabilities to produce at global standards. FDI is a means to introduce high-capability firms into a lower capability environment, to jumpstart new industries, and to bring about capability upgrading among domestic firms. FYDP II emphasises this for heavy industry like the planned petrochemical and iron/steel complexes in Mtwara and Mchuchuma respectively, but not as much for light manufacturing/assembly.

Yet, globalisation is an enabler for Tanzania here, particularly in light manufacturing/assembly industries such as, in textiles, footwear and electronics, whereby foreign producers often shop around for locations with low labour and infrastructure costs, which Tanzania can provide, and as production is now often broken down into a series of tasks/parts, Tanzania does not need to have the capabilities to manufacture an entire laptop, but could instead produce some parts for it or assemble some sections. Ethiopia is a good example of an African country that is successfully implementing this strategy.

When coordinated well, FDI can lead to tremendous capability transfers at both the individual level (knowledge and skill) and firm level (technological and organisational) as Tanzanian individuals and domestic firms can learn from FDI (e.g., from working within them, supplying inputs for them, engaging in joint-ventures, requirements for technology transfer, local R&D, worker training, managerial succession planning, etc.), and get

¹⁰⁵ Ha-Joon Chang, "Transformative Industrial Policy for Africa", Economic Commission for Africa, 2016

to an international calibre along both the vertical and horizontal value chains of that industry.

Bangladesh's booming garment industry, for example, can be directly traced back to the initial investment in 1970s from Daewoo, a Korean manufacturer.¹⁰⁶ Daewoo proved to be an incubator, as knowledge, skill, technological transfers resulted in the mushrooming of local Bangladeshi garment plants. Bangladesh's textile exports now amount to US\$ 28 billion, or 90 per cent of all their exports. Strategic Targeting of FDI for Capabilities Transfer: Lessons from China.

The key to success in domestic capability building through FDI lies in strategic targeting, embedding, partnership and regulation. Countries that have benefitted from FDI ensured that they attracted it into specific areas that were strategic for their nations, with a case in point for this being Ireland, which only began to prosper after moving from an indiscriminate FDI approach of "the more, the merrier" to a focussed strategy that attracted foreign investment in sectors like electronics, pharmaceuticals, software and financial services.¹⁰⁷

After identifying the industries in which Tanzania would like to grow, say, textiles and electronics, we need to actively seek out strategic investors and convince them to invest in Tanzania, and do the necessary to ensure ease of investment. We need equivalents of Daewoo and IBM, and it is not enough to improve the business environment, build industrial parks and advertise, and expect that they will come. The corporate HQ of, say, Huawei, will not be sitting around thinking, "Tanzania has a new industrial park geared towards tech and a good business environment, and so we should go there." We need to specifically pursue Huawei and whoever else we think would fit the bill.

The leveraging of FDI by China for capabilities transfer should serve as a lesson for Tanzania. Policies were deployed with the aim of facilitating the transfers of technologies from more economically advanced economies. There were regulations on technology imports. TNCs were made to form joint ventures with Chinese companies, most of them being SOEs or enterprises that are associated with the government. Through joint ventures, the state retained effective control over foreign affiliates so as to advance Chinese interests.

Majority-stake acquisitions of, and mergers with, foreign companies from advanced countries were engineered, often with a view to gaining access to more advanced technologies – prominent examples include Sweden (Volvo), the UK (MG Rover), the US (IBM's personal computer business, which is

¹⁰⁶ Justin Yifu Lin, "The Quest for Prosperity: How Developing Economies Can Take Off", 2014

¹⁰⁷ Ha-Joon Chang, *Bad Samaritans: The Myth of Free Trade and the Secret History of Capitalism*, 2010

now called Lenovo), Austria (Fischer Advanced Composite Components), France (Adisseo) and Korea (Ssangyong Motors). Incentives were provided to entice foreign companies to set up R&D centres in China.”¹⁰⁸

Similarly, foreign firms started off the electronics production in China in the 1980s, but very soon after, Chinese firms and individuals had learned and acquired technological and organisational capabilities, and were producing at international standards. A famous example of this is Lenovo, a Chinese multinational technology company, founded in 1984. Lenovo started out by conducting quality checks on computers for new buyers, and had its first major break when they developed a circuit board that enabled IBM personal computers to process Chinese characters.

In 1990, Lenovo started to manufacture computers using its own brand name, and only 15 years later, in 2005, Lenovo acquired IBM's personal computer business, the same business that had given Lenovo a start in its early days. Lenovo is now the world's largest producer of personal computers, with revenue of US\$ 46 billion in 2015 (eight times the size of all of Tanzania's exports in that year).

As per President Magufuli's emphasis on the need for a strong national economy (i.e., domestic-owned and controlled, wherever possible), Tanzania should engage in joint ventures to launch its export-oriented light manufacturing/assembly industries as a means to ensuring domestic capability build-up. South Korea and Taiwan were known to put ceilings on foreign ownership when inviting FDI, with the local stake being state-owned and/or private, and imposing strict local content requirements. Similarly, as Tanzania is utilising the National Development Corporation (NDC) to engage in strategic joint-ventures with foreign investors in resource-oriented heavy industries, so too can it for light manufacturing. The government could also strategise with the domestic private sector to engage in the joint ventures.

Vertical and horizontal technology and skills spillovers also have to be managed. More vertical spillovers can result from, for example, partnering with the foreign investor to improve the technology and skills of potential domestic supplying firms. Public-private partnerships enable domestic companies to access information and training on international best practice, for both vertical and horizontal spillovers, as with the Confederation of Indian Industries, funded by the private sector, which provides services of this kind at fees that are within reach of India's smaller manufacturing companies.¹⁰⁹ The learning from vertical and horizontal value chains within a single booming industry often spills over into the rest of the economy. As any one industry grows, firms within it get larger and more complex, and

¹⁰⁸ Ha-Joon Chang, "Transformative Industrial Policy for Africa", Economic Commission for Africa, 2016

¹⁰⁹ John Page, "Can Africa Industrialise?", Journal of African Economies, 2012

individuals get better and more effective at creating and operating within them. Thus, organisational know-how, behaviour or working practices that are learned and absorbed from large-scale, targeted FDI can easily be translated into other industries.

11.10.1 Pitfalls of FDI

The pitfalls of FDI are many, and they should also be taken into account. One example is the substantial repatriation of profits out of Tanzania to the host country. In 2014, as much as US\$ 541.4 million was sent from Tanzania to FDI host countries in the form of profits (these are just the numbers that are officially tracked.)¹¹⁰ Sanctions in the form of abrupt withdrawal of FDI can be a bargaining chip for host countries wishing to exercise control over our economy, and this needs to be taken seriously. In general, from Tanzania's perspective, FDI should be looked at less as a means of bringing in more money, and more as a means to transferring knowledge, advanced technologies and managerial skills possessed by foreign corporations to domestic firms and our domestic economy.

11.11 Build-up Capacity of State Implementers in Strategic Industries

Effective, out-of-the-box thinking needs to be accompanied by effective, out-of-the-box implementation. We hope that this piece adds to the thinking and planning aspect, but we strongly call for major restructuring and revamping of implementation.

FYDP II or any other plan will amount to nothing if implementation is poor, and this is in a larger part why FYDP I did not perform as expected. Professor Ha-Joon Chang summarises the strong need for implementation capabilities at three levels for an industrial policy to succeed:¹¹¹

1. **Individual:** Effective policy implementation requires capable people to do it. At the centre of it are the government officials working in ministries and other public agencies (e.g. public research institutes working with industries, agencies providing extension services to SMEs). But we also need capable people in the private sector agencies that actually implement some of the policy measures (e.g. the employers' association, industry associations, trade unions)... One critical point of note is that improving administrative capabilities here does not mean training in economics (and at that narrow neoclassical economics), as many of the 'policy capacity building' programmes run by international organisations, like the World Bank, believe. People are usually surprised

¹¹⁰ "Tanzania Country Profile", Economic Commission for Africa, 2016

¹¹¹ Ha-Joon Chang, "Transformative Industrial Policy for Africa", Economic Commission for Africa, 2016

to hear that most industrial policy-makers of the East Asian ‘miracle’ economies, especially in the early years, were non-economists – lawyers in Japan and, to a lesser extent, Korea, on the one hand, and scientists and engineers in Taiwan and China, on the other hand. They are even more surprised to hear that, especially until the 1970s, what little economics these non-economists knew was mostly of the ‘wrong’ kinds – Marxist economics, the theory of infant industry promotion...

The East Asian examples show that the capabilities that good policy-makers need are not the knowledge of supposedly ‘relevant’ subject, like economics, but general intelligence, the ability to learn, skills to manage complex projects, and the ability to maintain organisational coherence.

2. **Organisations:** Moreover, administrative capabilities are not just those possessed by the individuals working in the government and other related organisations. Organisations themselves possess capabilities in the forms of particular command structure, institutional routines and organisational ‘memories’ (e.g. records and processing of past activities). The quality of these capabilities is as important as, if not more so than, capabilities possessed by the individuals who work in them.
3. **Supra-national coordinating organisations and agencies:** Last but not least, it is not only the capabilities of the individual organisations implementing industrial policy but also the interaction between them that is important. The relevant bodies (public and private) need to have good working relationships with each other. They also need some mechanisms to coordinate their actions, whether through some intellectual exercises (e.g. indicative planning, foresight exercise) or through organisational structures that makes coordination easier (e.g. some super-ministry, such as France’s Planning Commission or Korea’s Economic Planning Board [EPB], coordinating the activities of different ministries through development planning).

There are many ways to ensure general competencies and a build-up of implementation capabilities, and some are discussed below.

11.11.1 Public Service Competency Examination

There should be competency tests for implementers and government officials to test for content skills, hard skills and soft skills. Doctors, lawyers, engineers and teachers, among others, all have to do tests or exams that prove that they can perform to a certain level. Why do we not have tests for the people who have the most important jobs in the country—the job of running the country?

Roles in the government and in the agencies driving industrialisation should not just go to smooth-talking, connected, well-off people, but people who are actually capable and qualified to effectively carry out these jobs. In some ways, this mediocrity of public officials seems to be the hallmark of democracy (Donald Trump is the best example of this, but we see it everywhere), and we should instead strive for meritocracy over everything else.¹¹² We need to ensure that the people spearheading industrialisation understand where we are headed, and are aligned with national strategy.

The competency test of meritocracy (as has been done in many East Asian countries, with their Confucian-style meritocracy) in Tanzania could be broken into three sections:

1. **Content** – Before the test, the individuals have to study works of development experts such as Ha-Joon Chang, Justin Yifu Lin, John Page, Erik Reinert, Justinian Rweyemamu, Daniel A. Bell, the FYDP II, writings and speeches of Mwalimu Nyerere and President Magufuli, and industrial policies of other nations and true economic history (and not the hypocritical free trade nonsense). This study and understanding of industrial policy and economic history will demonstrate to our government officials that much of what is prescribed to us today by developed countries is not what these countries used to get where they are; the study and understanding will enable them to draw lessons relevant for Tanzania, and give them confidence to defy convention and break rules where necessary, in order to drive Tanzania's interests.
2. **Hard Skills** – For managers, there should be a test to check for ability and skills to manage complex projects at a global standard (i.e., we should not just blindly believe the CV); for engineers, a test of serious competency and experience in, say, industrial engineering or civil engineering (i.e., we cannot just trust any certification; we must test the capabilities of the candidate ourselves to confirm); and the like.
3. **Soft Skills** – There should also be a psychometric test that checks for people's capacities of problem-solving, ability to mostly self-learn, critical thinking, ethics and morality, leadership, innovation, grit, nationalism, ability to operate well in organisational structures.

If people do not pass this test, they must re-prepare and re-study, where necessary, and sit it again. If they simply cannot pass, then they should not be leading the country or its industrialisation drive, and we find someone else to do the job. In the beginning, this testing will definitely take up some resources, but it will be more than worth it in the long term, ensuring that only the best and brightest serve at the highest levels of government. We can

¹¹² Daniel Bell, *The China Model: Political Meritocracy and the Limits of Democracy*, 2016

start to pilot these tests within the Ministry of Industry, Trade and Investment, NDC and the President's Office, as they are the ones immediately driving industrialisation, and the test should thereafter be extended to the Ministry of Finance and Planning, Ministry of Education, TIC, Tanzania Ports Authority, Export Processing Zones Authority, TPDC, all SOEs and others.

11.11.2 Send Emissaries to Other Nations

Many nations have industrialised despite major odds, and we should send emissaries to study and work in these places, to learn best practices and to gain experience, and return to Tanzania to put the knowledge and skills acquired to use. One of the first things that Deng Xiaoping did in 1978 to transform China was to send thousands and thousands of Chinese to learn from countries abroad. Lee Kuan Yew allowed for over ten thousand Chinese over many years to go to Singapore and study its various systems.¹¹³ Singapore itself did the same when it was rising, as have South Korea, Malaysia, Vietnam, and others, since.

The study should not just be a simple perusal of life, economy and practices there (or for a free shopping trip, as officials in the past have done), but a serious, in-depth dive into all aspects relevant to the sector to be studied. For example, to study overall industrial policy and state guiding, we should send some teams (after they pass the aforementioned competency exams) to work for a year or more within Singapore's Economic Development Board (EDB), some teams to China's National Development and Reform Commission (NDRC), some to the Rwanda Development Board (RDB), etc.

These teams should send weekly reports, and return to Tanzania when necessary to put into action all that they have learned abroad.

Similarly, in the case of a strategic industry like oil and gas, we should not only train our people rigorously both locally and abroad, we should also ensure that they get experiences by working at Sinopec, Petronas, Statoil, Total and the like.

11.11.3 Search Local Private Sector/World for Tanzanian Talent, Poach into Government

Often, the best and the brightest Tanzanians want to serve the nation in a capacity, but would rather not deal with the issues normally associated with the public sector, and therefore resort to the private sector, and in the case of those already abroad, remain abroad. We must make a strong effort to woo many of these people to government. We already have some local examples of how powerful this can be e.g., with NHC and Nehemiah Mchechu: Nehemiah was poached from his position as CEO of CBA Tanzania, and he

¹¹³ Lee Kuan Yew, *From Third World to First: The Singapore Story*, 2000

and his team members have overseen the complete overhaul of NHC. James Mataragio was similarly brought in from Bell Geospace (where he worked with major oil and gas companies) to run TPDC.

President Magufuli has so far done a great job at picking public servants based on meritocracy, but even then, we know we can do better in many government implementation entities, and we must strive to find brilliant Tanzanians from everywhere to fill these roles. When we cannot find what we need from the above methods, we can bring in temporary experts, and put in place very, very clear succession planning i.e., training Tanzanians and putting them as second in command to learn and soon take over. This was the case with Norway's Statoil and their hiring of Americans in the first few years as managers and engineers; however, in just a few years, there were no Americans anywhere, and the company was almost entirely Norwegian. The Rwanda Development Board was also initially run by Joseph Ritchie, an American; as John Gara, a Rwandan, trained and became highly qualified and ready to run the show, the reins were passed to him.

11.11.4 Encourage Economic Patriotism and Swahili Exceptionalism

Professor Dan Ariely, writer Daniel Pink, and others have demonstrated clearly that extrinsic motivators like higher pay do not always make people perform better in their jobs, and that, in fact, when the problem at hand requires critical thinking and creative problem solving, extrinsic motivators may actually make people perform worse.¹¹⁴

What makes people perform better? Daniel Pink summarises the intrinsic motivators as: autonomy, mastery and purpose.¹¹⁵ He elaborates:

- *Autonomy: the urge to direct our own lives*
- *Mastery: the desire to get better and better at something that matters*
- *Purpose: the yearning to serve a purpose larger than ourselves*

These, Daniel Pink says, “are the building blocks of an entirely new operating system for our businesses.”

We need to give Tanzanians a purpose to fight for what drives their inner fire and it cannot be empty talk about development as has been the case over the past decades; they must be able to see and feel tangible change. This takes us back to Swahili exceptionalism from earlier.

¹¹⁴ Daniel Pink, *Drive: The Surprising Truth About What Motivates Us*, 2009

¹¹⁵ Daniel Pink, "The puzzle of motivation", TED Talks, 2009

This must be accompanied with means for mastery such that if a young person wants to and is capable of, say, working at NDC to launch a Tanzanian state-owned mobile telecom provider or state-owned bank, and is doing so not just out of self-interest, but out of a passion for Tanzanian emergence, she/he should be given opportunities to develop capacities to contribute.

To be continued after the review of the successes and failures of FYDPII

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B. Notes

1. According to the Sugar Board of Tanzania, total sugar demand in the country was 450,000 tons per annum as of 2015. This figure is manifestly wrong and it explains why government policy towards the development of the sugar industry has been unsuccessful for many years.
2. Corporate governance in South Africa was institutionalised by the publication of the King Report on Corporate Governance in November 1994. This report has subsequently been superseded by the King Code of 2002. The purpose of the King Report is to promote the highest standards of corporate governance in South Africa. The Code of Corporate Practices and Conduct contained in the King Report applies inter alia, to SOEs and agencies that fall under the PFMA.

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