

REPORT

**Experiencing the German
Plumbing Education and Training
System, & Business and Entrepreneurship**

By

Abede Mack MBA, BA (Hons)

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WORLD PLUMBING COUNCIL 2014 EDUCATION AND TRAINING SCHOLARSHIP REPORT

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A Glance at the world plumbing council

The World Plumbing Council (WPC) is an international organization which aims to develop and promote the image and standards of the plumbing Industry worldwide! WPC mission statement is: "To promote the role of plumbing in improving public health and safeguarding the environment, by uniting the World Plumbing Industry, for the benefit of all."



ABOUT WPC 2014 SCHOLARSHIP RECIPIENT



The author name is Abede Jawara Mack. My desire is to achieve the fullest in a career where I can bring about development and transformation to individuals and organizations. I am very passionate about development from a human resource perspective and from a vocational skills perspective as well. I like researching and exploring knowledge thus, I embark upon doctoral research. One of the main reasons for doing doctoral research in Technical Vocational and Educational and Training (TVET) is my passion for TVET. My genesis began under TVET and still is, TVET made me a professional and it was a stepping stone for my development. TVET is greatly stigmatised and receive little attention and recognition.

I am a young Seventh-day Adventists that has a drive and passion for ambition and being the best I can be under God. I am a father of three and husband of one wife. I pursued my Masters in Business Administration (MBA) in Executive Leadership and Entrepreneurship and Innovation with Anglia Ruskin University based in the United Kingdom. I love teaching, educating and training people. I have been a Teacher, and Trainer for over 7 years, and I have been working in TVET for over 15 years. I am awaiting enrollment to pursue PhD in Education Management/Education in Trinidad and Tobago (T&T) or with a South African university. Born and grow up in Morvant a city area but reside in Talparo a rural village for the past 3 years.

I am a plumbing professional for the past 15 years where I worked as a Plumbing Assistant, Plumber, Senior Plumber, Plumbing Foreman and Managing Director. I obtained my Plumbing diploma from John S Donaldson Technical Institute (1998-200). At present I work in the capacity as Life Skills Tutor where I trained young adults in: customer service, work ethics, values and morals and other topics relating to life and preparing persons with social skills for work and the world.

I have worked on a number of plumbing projects in my private capacity and while in full-time employment as a plumbing professional. Some of such projects would have included: Piarco International Airport, West Mall and Trincity Mall (extensions) BPTT headquarters (Extension), Nicholas Towers, and PriceSmart Port-of-Spain. Homes included: Maraval, Morvant, Petit Valley, St Augustine, West Moorings and Chaguanas, among others.

ACKNOWLEDGEMENTS

I firstly would like to thank God for making this trip possible. For granting me wisdom and strength to get by in Germany. I would like to thank my wife and kids for their support during the month of June 2015 while away. I have to thank Mr. Esser and his office for their level of commitment, support and ensuring that I am well take care of during my stay in Germany. The Germans are excellent host. I must say thanks for my Guides; Mr. Fredrick and Mr. Christian who took me around in Germany to visit companies, engage in leisure activities, touring Germany and for providing meals while in their care. Also Mr. Fredrick plan my stay in Germany for the entire month and made all the contacts with the relevant companies and business partners I say thanks to Mr. Fredrick. To the guild in Munich Sanitar Heizung Kilma who made my stay in there very comfortable and pleasant, thanks Dr Schwarz and Mr. Wermes. Thanks as well to the Chambers of Berlin and Munich that provided me with knowledge regarding the work of the chamber and the German Dual system. The BIBB institute gave me a wealth of information on the German dual system, trends and best practices of TVET in Germany, and globally. Also thanks Mr. Kupper, Mr. Wedel and Mr. Buchberger for sharing your expertise on business, entrepreneurship, marketing, customer service, family run business, and management. I learnt so much about the practices of German business and management. Oventrop, Geibreit, and Veiga gave me remarkable insights on the role and function of the manufacturing sector in Europe and Germany. Mr. Strobel thanks for your insights into the publishing of TVET work within Germany.

EXECUTIVE SUMMARY

This report provided an overview of my experiences and learning from the beautiful republic of Germany. Firstly I was able to share about what I have learnt in Germany. I wrote about the history of vocational training, indicating its importance to the Germany society. I also wrote about Germany and their history highlighting the importance of German civilization and painting a picture about the richness of German life going far back in mediaeval history with the German icon of Dr. Martin Luther the German monk. I pointed out the role the German Dual System plays in the German Economy. Sharing its value and importance in TVET. Also I was able to elaborate on the role TVET plays within the development of human capital within Germany and also Europe. I paid attention to the German school system bringing light on the Robert Mayer School and the Arnsberg Training center. The role of the Guilds and the Chamber was emphasised and pointed out their place within the scheme of things in the advancement of TVET. The role of research and development came up featuring the responsibility of the Federal Institute for Vocational Education and Training (BIBB) plays in the progress of TVET in Germany. Highlighting the importance research and development plays with the advancement of plumbing and TVET in Germany. The importance of family run business and the imperative nature of entrepreneurship was showcased. This gave light on the paramount role technology and innovation plays in the manufacturing companies visited in Germany.

Another area the report featured was the importance of Health and The environment where water was spoken about and the dangers of stagnant water, revealing the water bourne disease Legionella. The learning I experienced to benefit my country of T&T came to light. Where I pointed out I would be able to share the knowledge I receive from Germany for the development of the plumbing profession. Additionally, the knowledge and experiences learnt would enable me to utilise the treasured learning for doctoral research. I was able to highlight and share my skills and experiences from T&T to the Germans. Lastly the Germans benefiting from my stay in Germany was specified. I was able to articulate quite clearly about my knowledge from doctoral research, which involved knowledge on organisational leadership, stigma, TVET and global trends in TVET. All this gave the Germans a great deal of insight about the role of TVET and its challenges globally.

This report provides just a summary of my stay in Deutschland known in English as Germany. So much was learnt in the beautiful nation of Germany. More could have been said however, Germany is a wonderful and beautiful country. This report provides the reader with a wealth of information regarding the country of Germany. It bring to light knowledge on the subjects of Research and Development, TVET, Stigma, History, Entrepreneurship, Family Business, the German School system and a wide range of other areas to divulge in and acquire great learning.

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Figure 1: German flag

WHAT DID I LEARNT?

A lot was learned, a great amount of knowledge, expertise and insights were gained from Germany. Germany is a great nation to learn from, it is a country where experiences would be gathered, and history is something of paramount importance to the Germans. The dual system of TVET is of great importance and significance to the Germany people and their economy. The role of the guilds and the chamber of crafts play a very pivotal role in their TVET programmes, economy and their vocational businesses. Research and development definitely is crucial to their longevity and relevance as a nation. All these areas would be explored further and be presented in a manner to bright great light to the role they play in the life of the German economy, plumbing and their vocations.



Figure 2: German States

Source: http://www.nationsonline.org/oneworld/countries_germany.htm

About Germany

Germany carries a landmass that stretches from the North Sea and the Baltic Sea in the north to the Alps in the south. The German population is the largest within the EU community. Germany borders Denmark to the north, Poland and the Czech Republic to the east, Austria and Switzerland to the south, France and Luxembourg to the southwest, and Belgium and the Netherlands to the northwest. The German population is over 80 million which according to a recent BBC report that the population is diminishing and would need millions of persons to fulfill the future demands of the German industries and economy. Germany's most crucial sectors of the economy in 2014 were industry (25.9 %), public administration, defense, education, human health and Social Work activities (18.2 %) and wholesale and retail trade, transport, accommodation and food service activities (15.5 %).

Germany's main export partners are France, the US and the UK while its main import partners are the Netherlands, France and China.



Figure 3: Remnants of the Berlin wall

The history of vocational training

There is a long history associated with the German's Dual training system. Training was conducted in the company alone in the distant past. With the advent of mandatory school attendance the dual system began to take shape. The Middle Ages was a time where efforts were made to provide systematic training in the area of the skilled crafts and trades. The Vocational Training Act, which was implemented in 1969, introduced a national legal framework for the different traditional training paths in the skilled trades and in industry and commerce.

Table about Germany:

Capital: Berlin
Geographical size: 357 340 km ²
Population: 80 780 000 (2014)
Population as % of total EU population: 15.9 % (2014)
GDP: € 2737.6 billion (2013)
Official EU language(s): German
Political system: federal parliamentary republic
EU member country since: 1 January 1958
Seats in the European Parliament: 96
Currency Eurozone member since 1 January 1999
Schengen area member since 26 March 1995.
Presidency of the Council: Germany has held the revolving presiding of the Council of the EU 11 times between 1958 and 2007.

Figure 4: About Germany

Source: http://europa.eu/about-eu/countries/member-countries/germany/index_en.htm



Figure 5: Martin Luther German Historical Icon

The above information (in the table) outlines the important role the German nation plays within the EU community and the greatness she possess as a nation. It also depicts the value and political stability of the Germany nation. It must be noted, however, Germany does not possess any natural resources yet they are a very productive nation. They bring about great yields for exporting and providing enough for consumption for their country. German is a force to reckon with, it is a nation that is highly productive. I am amaze with the German way of life especially with regards to their

adherence to law and order. I must say based on my observations Germans are well taught regarding their history. I saw the kids going to museums to learn and take notes about their past. Most Germans could articulate clearly their past. Whether it be about World War 2 involving Adolf Hitler, or about Martin Luther the German Monk they are well aware of their past. Great emphasis is placed in the schools, and throughout the nation concerning their roots and history as a country and as a civilization. The German people are very militant and organize people. They are very orderly, they take scheduling and time very seriously. One thing I love about Germans are their warmth. Getting lost, not understanding the German language and the vastness of the country. The Germans came to my rescue time and time again, they gave me directions they were very patient and helpful. Very loving people, I was meted with great kindness from the Germans. I would always speak highly of this nation. Lastly I love there genuineness I could have tell they really cared about my interest and me, thus I must say I love Germany.

Germany's Dual System of TVET

I have outlined some elements of the German Dual System of training below, adapted from Federal Ministry of Education and Research (2009):

1. Dual Training

The principle is illustrated in the name. The allocation of the responsibility for vocational education and training is shared between two partners. A training contract is concluded by a company with a young trainee and the company assumes the responsibility for teaching the required training contents. Learning is organized by the company for an average of three or four days per week on the basis of a training plan, which forms part of the training contract concluded with the trainee. The other 2 days or 1 day is spent in an institution classroom

2 Learning in the company

The workplace is the place where a great deal of the learners training transpires. This is the central point in which the German dual system differs from the school-based training models of other countries such as my country of T&T. Conducting training in house (company) provides familiarization to students with the technological and organizational aspects of the current work processes in companies. Furthermore, trainees while training would contribute to the company's productivity. Thus reducing the cost of TVET for both the companies and society at large in the long haul.

3 Training Regulations

Training regulations are issued by the Federal Government which provides the basis for training students in the company. These regulations stipulate inter alia the minimum vocational skills which must be taught as well as the examination requirements.

4 Training contract

Training in the company is offered on the basis of a contract which is founded on general labour law and involves some special provisions. These contracts are subject to legal jurisdiction by the adept public agencies (in most cases the chambers).

According to the Federal Ministry of Education and Research (2009), embracing the principles outlined above provides both employers and young people with vast opportunities and advantages which includes:

Employers

Long-term personnel development

Companies are largely un-affected by fluctuations on the labour market.

Less expensive recruitment

Saves time on recruitment and selection.

In house training allows the company to save time and helps minimize the risk of hiring the wrong person for the job,

Cost saving.

Graduates are familiar with company processes and have worked together with company staff for several years.

More qualified persons for their specific job

Loyalty to their company.

Furthermore they contribute considerably to corporate value creation while training in the company.

Advantages for young people

Quality certification to vocational qualifications which are recognized throughout Germany

Graduates are good prospects on the German labour market

Great transferability to other employers.

Trainees are paid during dual training provides for a certain degree of independence.

The organisation of dual training requires a multifaceted but clear division of responsibilities. Employers and unions play a pivotal role in ingenuity for transformation because the structure of vocational training must meet the demands of industry. If there is a need for alterations in the qualification requirements, for instance– the Federal Government, the Länder and industry agree on the basic principles for revision. Then the work on the training regulations and framework curricula is continued and frequently harmonised by the individual partners involved. This shows the German Dual System of TVET is well thought out. It's an institutional framework that will stand the test of time. This model of vocational education is of boundless strength and provides prodigious capabilities. The Dual System is very substantial,

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it is system of education that can be utilised in T&T. if this method is only half utilised in T&T our TVET system can reach leaps and bounds. It would provide us with unlimited possibilities within our education system and economy.

It should be noted that Germany has adopted a dual system, of TVET where by and large the industry plays a major part in advancing TVET within their nation. Germany is known for having the best TVET system globally. Mullins (2002) stated that Germany has been referred as an example of excellent practice with their dual system of TVET. Beardwell (2004) also mentioned that the German's TVET system demonstrates efficiency in their youth training programmes.

The German model for TVET which is the dual system is of great importance and relevance to their country and economy. This choice and practice of education, and training should not go unnoticed. Germany is a power house and is considered by many TVET practitioners, as the global leader in vocational education. Thus many lessons can be learnt from Germany regarding TVET for T&T. A subcommittee responsible for TVET in Trinidad and Tobago (T&T) (ND: 118 & 119) further expressed Germany as an international bench mark for best practices. As a result the author would recommend Germany's TVET strategy as a model for developing T&T's TVET programme. Even Mullins (2002) lauded Germany's TVET example as a model for excellent practice. Germany Dual system is vast and a wonderful model of education and training it is very industry relevant.

It is indeed noted that German model of education is a great blessing to their society and economy. Their model is widely spoken by many. Even considering the remarks by Mullins (2002), Beardwell (2002) and the subcommittee, all spoke highly of the German model of education. Looking at what the Germans have to offer it is of impeccable value and importance. If T&T could only accept part of these principles our TVET system would be radically reform for the better. This would be an added benefit for the plumbing fraternity and vocation in T&T it would provide our nation with the best plumbers within the Caribbean. It would raise the bar, it would raise the bench marks and industry standards of the plumbing sector in T&T. it would help with improving many aspects of the plumbing industry in T&T for instance: health, customer service, better operating procedures, quality plumbers, quality certification, high level of professionalism to the industry and improve plumbing services.

The German Vocational School System



Figure 6: German Kids at Museum displaying skills

It was an honour to see the children displaying craft from a very early age in the city of Bonn. This is how vocational education should commence, from early on in the life of a child. Kids, their parents and guardians took time out of their

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busy Sunday to come out to this exhibition hosted by one of the museums in the city of Bonn to learn and become acquainted with craft. These type of abilities should be inculcated from the tender ages of a child. Acquiring lessons in the fond times of a child will help build capabilities, likes and passion for TVET which is very much needed in our world today. I have learnt in Germany the demand for TVET is on the decline as expressed by many of the practitioners, experts, and representatives from both the guilds and the chamber. They would have been informed based on the decline in enrollments at their institutions and trends they have noticed within Germany. Many indicated this would have been as a result of the demand for academic courses and degrees as well.

Another place of learning that I visited was the Robert Mayer-School (RMS) for heating and handcrafts in the town of Stuttgart. The RMS was founded in 1911 after the Heilbronn physician Julius Robert Mayer came up with the energy conservation law. This was an amazing experience along with the many others I have encountered while in Germany. Visiting the RMS afforded me great know-how about the vocational system within Germany. I remember I met an English teacher that was responsible for teaching all the students English. His approach to English was hands-on whereby he taught them applied English relating to their various vacations. This school is a good model of education. I also learnt a wide range of knowledge involving the HVAC system. The RMS provided an excellent opportunity for students to attain a high and valuable level of technical proficiency in their respective occupations. Some of the students at this institution come from various European countries and at times seek legal asylum where unemployment is extremely high in other European countries. This training affords them an occasion where they can take hold of the astonishing practices and scholarships that are granted at this prominent education centre of learning.



Figure 7: Young apprentices at the RMS



Figure 8: Students preparing for exam

I also visited the Vocational training center in Arnsberg. This was a wonderful experience visiting this outstanding institutional of learning. I was greeted with the magnificent and breathtaking scenic views of the alps (mountains) of this area; Arnsberg. This location is an ideal loaction for training and development. It is away from the modern distractions of the city and the hustle and bustle of modern life. So much so I was told by the head master that students come from as far as China as well as other distant locations within Germany. The school is situated in a rural location, however, this do not stop individuals from coming to learn. The school has accomadtion for sleeping and its own resturant, this offeres the students the opportunity to remain on campus. Since the location is extremly far from the main city areas, providing sleeping arangements and eating facilities gives students the much needed occasion to stay at school and make an informed choice regarding their schooling. The school includes sports a part of its cirriculum as an incentive towards students to compete against the other scholls that are in the other major city areas that lends itself to modern amenties. This training center offer a number of services which includes:

- Vocational training
- Master classes
- Business management training
- Individual training for companies
- Technologic transfer for companies

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- Dual studies (machine engineering, systems)
- Technology for buildings)
- Automobile and commercial vehicle technology (developed in relation to a special funding guideline of the federal government)
- Fischer fastening technology (manufacturer orientated)
- Stainless steel (German network)
- SATA varnishing technology for several professions, such as
- Metalworkers or joiner (manufacturer orientated)
- Study and work (or do an apprenticeship) at the same time
- Standard period of study: 9 terms (instead of 6 in full time studies)
- Final degree: „Bachelor of Engineering“ (B.Eng.)
- Registered as a student at the University for applied sciences Südwestfalen

Source: <http://www.bbz-arnsberg.de/>

After contemplating what the Arsberg Vocational Training Center had to offer, looking at the RMS and considering the training from a young age displayed at the training exhibition put on by the museum in Bonn tells us a lot about the German TVET system. It brings to light the great work that is being accomplished in Germany. It highlights the achievements thus far within vocational education. It shows that the heavy investment meted out towards TVET is not in vain. The results, the fruits are being manifested through the nation of Germany. This is excellence at work. This tells a story that should not go unawares. TVET needs to be taken seriously by global players, policy makers and governments. It is a message for my nation. T&T need to consider modelling their TVET system to achieve the success of the German nation. A nation shaping their vocational programmes into this methodology will prove to be a major blessing. Based on the revelations mentioned and what have been expressed by many authors of TVET, one can conclude and say the German Vocational School model is a noteworthy standard to follow.

The Role of the Guilds and the Chamber

Guilds



Figure 9: Instructor at a guild explaining the work of HVAC system

The role of the guilds is of vital importance in Germany. The guilds are not mandatory for employers to join however, they play a vital role part in the development of plumbing and other key skill areas within the German economy and nation. The guild is responsible for plumbing and heating, in Germany the guild is known as the German Sanitation, Heating and Air Condition Association. In the German tongue it is known as Zentralverband Sanitär Heizung Klima (ZVSHK). The ZVSHK is a professional organisation, trade association and body advocating the interests of the sanitation, heating and air conditioning (also identified as HVAC) trade in Germany. ZVSHK represents the interests of installers, plumbers, tank and apparatus manufacturers as well as stove and air heating contractors. This national association encompasses 17 specialist associations and 400 guilds.

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ZVSHK is the central association that is the largest national association in the European Union (EU) for the planning, construction and maintenance of technical building systems, focusing on energy technology. The Register of Qualified Craftsmen states that there are 51,937 sanitation, heating and air condition companies in Germany, employing some 343,000 individuals and over 33,000 apprentices. The ZVSHK trade in Germany. ZVSHK represents over 50,000 guild companies that are unionised and non-unionised.

The work of this association is great, it should not go unnoticed. This is the kind of representation that is needed in our world, society and even in T&T. The work of ZVSHK is well organised, well poised to transform and work for the development of the various sectors in Germany along with their economy. What should be noted with this entity is their management structure. The central organisation is led by Mr. Esser out in St. Agustin. Followed by other sub offices in the various states and cities throughout Germany. This provides for proper management and oversight, of the various skills that ZVSHK is responsible for. It ensures that the ZVSHK skill areas are adequately equipped with the much need resources and aid. ZVSHK serves as a lobbyist body however, not as an old-school model of advocacy work,; where the approach is more of an adversarial role, but a modern body that seeks the interest for the advancement and betterment of their plumbers, installers, and the other skilled personnel. The ZVSHK is a body that negotiates the trellis of political, public relations and publicised opinion to present economically and social relevant topics. The group also seeks to advocate for consumers on politically substantial issues around water, heat and air.

This type of work holds out a bench mark, best practices and international best standards that can be embraced for the development of plumbing. These practices can be utilised for the advancement of the plumbing vocation globally. Adopting these measures and ideals is a step within the right direction. T&T accepting these principles would only benefit our republic and our plumbing vocation in positive ways. T&T should consider this model of management, oversight and advocacy for plumbing. Many blessings have been noticed and outlined regarding this approach towards lobbying work.



Figure 10: Apprentices at a guild busy at work

The Chamber



Figure 11: Business meeting at the Chamber in Berlin

The Chamber of Crafts is a public corporation that offers a diversity of tasks for their members. For example in the Chamber of Crafts in Munich Germany, employs 350 people, of which 10 persons are apprentices, and 169 of the employees are female. The responsibilities of the Chamber of Crafts are legally binding. The members of the Chamber of Crafts send their representatives in the General Assembly, comprising of 75 persons. 50 General Assembly members representing the self-employed and 25 workers. Of these members 63 directly elected and 12 nominated by the General Assembly. The General Assembly selects the Board of Directors, in turn, the (one of the employees), and twelve other members of the President, two Vice-Presidents. The Board, comprising of full-time employees of the Chamber of Crafts, is selected by the General Assembly. The Management Board is accountable for managing the Chamber of Crafts. Externally, the Chamber of Crafts is represented by the President and the Chief Executive.

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The information above highlights how the chamber in Munich is operated and selected. It also features the number of personnel that constitutes the chamber. However the same process and principles are utilised across the 16 states of Germany depicting how all their chambers are managed and governed. What is also highlighted is the selection of the members that governs this distinguished body.

The chambers will validate the ability of companies and instructors for providing training and instruct both companies and trainees. The chambers receive the training contracts and check and register them. The overall organisation of examinations are managed and sorted out by the chamber which also has the responsibility of fixing dates, setting up examination boards and administering the examinations. Furthermore, the chambers serves as an awarding body with the responsibility of issuing certificates to successful candidates. The examination boards constitutes representatives of employers, employees and vocational schools. A vocational training board is constructed by the chamber, which must be consulted in imperative matters of vocational training. It is composed of equal numbers of delegates of companies, unions and, in an advisory capacity – part-time vocational schools.

The chamber in Germany plays a very pivotal role towards their continual development as a nation. Making it mandatory for all companies to join the chamber. This helps with ensuring all companies gain the needful support, aid, and representation required. The chamber exist as a dynamic entity. It provides a varied amount of services which are in the interest of its members. A point that should not go unnoticed is that the chamber serves as an awarding body. Which demonstrates their ability and interest as a body that seeks the development of the plumbing, heating and air-conditioning vocations in Germany along with other crafts. This type of work is of great value and significance. TVET require bodies like these to advocate its best practices throughout the world. Just as how academia have thriving representations, TVET needs to have such representation likewise. The chamber being elected as a legally constituted body furnishes the vocation of HVAC with sound legal and moral compasses. It serves as a guiding light, to lead TVET to safe shores.

A point to note is the chambers are situated throughout the 16 German states. I was privileged to visit the chambers in Berlin and Munich which represents the state of Bavaria. The practices that were seen first hand attest to the German's readiness, expertise and vocational excellence as a global player. This to me demonstrates the great recognition, international and best practices, and abundant attraction and importance of the German TVET system. It should never go unnoticed of the Germans significance within TVET globally. They deserve the title as TVET "BEST". T&T should therefore consider some of these attributes to develop our plumbing industry. Embracing such principles would only put us in a favourable position or propitious place within the Caribbean region and even within Latin America.



Figure 12: Business meeting in Munich Chamber of Craft

Research and Development



Bonn, 02/06/2015

Robert-Schuman-Platz 3
D- 53175 Bonn
www.bibb.de



Figure 13: First meeting in Germany visiting the BIBB Institute

Research and development is of great significance and importance to any organisation, nation, government and institution. Research and development has provided much needed data for job creation, planning and nation building just to name a few. The Federal Institute for Vocational Education and Training (BIBB) is responsible for a tremendous amount of the research and development and the advancement of TVET within Germany. According to BIBB (2013) BIBB is a center of quality for research associated with enlightened growth of TVET in Germany. BIBB has seen future trials in TVET, and will provide stimulated innovation in national and international TVET systems and cultivates practice-oriented solutions for both initial and continuing TVET.

BIBB as an organisation is of great value and importance to the German economy and nation. Based on the work expressed previously by BIBB it demonstrates unequivocally the significance and the worth of BIBB and how Germany plays a dominant part in research development. BIBB was instituted in 1970 on the premise of the Vocational Training

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Act (Germany). This was done as a federal institution for TVET policy, research and practice in the field of TVET in Germany. BIBB current legal footing is based on the Vocational Training Act of March 23rd, 2005, which outlines clearly the institute's task. BIBB accountability lies to the German Federal government under supervision from the Federal Ministry of Education and Research which also provides funding to BIBB. The role and the importance of the BIBB institution should not be overlooked. BIBB plays a very pivotal role within the landscape of TVET within Germany. BIBB provides Germany with much needed data and research that fits into the macro aspects of TVET in Germany.

A point to note regarding BIBB is that as an organisation they embrace the tenets of shared leadership in forming regulation for TVET in Germany. It was a distinguished pleasure while in Germany to speak with the person responsible for implementing training regulation and research. The BIBB leader stated that input for forming new vocational qualifications, training regulations and any updates to TVET are formed with many players such as; the trade unions, employers, chambers, guilds, associations, lobby groups and many others that have an interest regarding TVET in Germany. These groups have regular meetings that provide the necessary data and inputs to form the regulation and addition to TVET qualifications. Nothing is done without the sharing of powers or leadership. When the leaders finish sharing their inputs and recommendations for TVET it then goes to the minister responsible for TVET and it is sign off and becomes a decree, regulation or a new TVET qualification is formed. Thus one can see the fruits of shared leadership. T&T needs to adopt such measures in shaping and implementing policies for TVET. This how leadership can be shared in our republic. This highlights in a dynamic way the fruits of research and development. One can see the emphasis being place on research. Another point to note, BIBB receives a 120 million Euros allocation, to embark upon their work as an institution also to create new vocations.

I must say what I have seen at BIBB, it is a powerful and great entity, these are wonderful lessons to acquire from Germany and BIBB. This is institutional knowledge and strength at work, to glean and learn from. It provides a framework that our nation of T&T can benefit from. It brings to the forefront the value and importance research can play in TVET in T&T and globally. Germany has remain a power house in TVET globally because of the great work they are doing in regards to research and development. TVET is not done in isolation. One thing is certain Germany is putting money to back up research and development. They are demonstrating the crucial function research plays in our globalised world today.

More should be done in order to aid the advancement of TVET in the developing world which includes T&T. Research and development in German has seen plumbing making great strides and progress throughout the years. It has seen high technologically plumbing apparatus, equipment and a diverse range of products.

Family run Businesses and Entrepreneurship



Figure 14: Meeting with Business Owner Kupper in Bad Godesberg

I have noticed that Germany is enriched with a great deal of small and medium size businesses, which are family owned and managed. I was privileged to visit a number of small and medium size companies and one large company all were family run and owned. Take for instance I visited a firm by the name Kupper. The company are in the work of primarily re-modelling bathrooms. They are relatively large, employing over 100 persons. They have 3 locations within the Bonn area, where work is done primarily. Their aim is not to compete with bigger firms. Kupper places a great deal of emphasis on customer service they see the vital importance to embrace and practice effective customer service since the market and environment is highly competitive. Another important feature of this firm is that they employee about 20 apprentices yearly. They see the importance of employing these apprentices stating that it is for the very survival of their occupation, the industry and the economy of Germany. Information Communications Technology (ICT) is another important factor in operating their business.

A point to note, Kupper places high value on customer service this is a move that would produce great yields to any company. Time and time again research has shown the importance customer service plays in business, and how it has an imperative role in shaping the success of companies. Regarding customer retention, customer service has a

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paramount and leading role. Kupper states that this worked and is working for them hence the emphasis on customer service. T&T can acquire these lessons, our nations lack this much needed ingredient for business relations and success. T&T is a nation with a great deal of natural resources predominantly natural gas and oil. Many wonder is it because we are rich with these natural bounties cause us to behave arrogant and puff-up. Germany on the other hand along with many countries that do not possess any natural resources are the most friendly when tourist visit their shores. There needs to be a different mindset concerning the way business with TVET is done, plumbing is no different. A rebranding, a refocus is needed regarding customer service in T&T among our areas of TVET. If our plumbing companies embrace such principles we can go places, we can see transformation within our business sector, which really surmounts to progress and a more improved and reliable plumbing service.

Firm in Munich

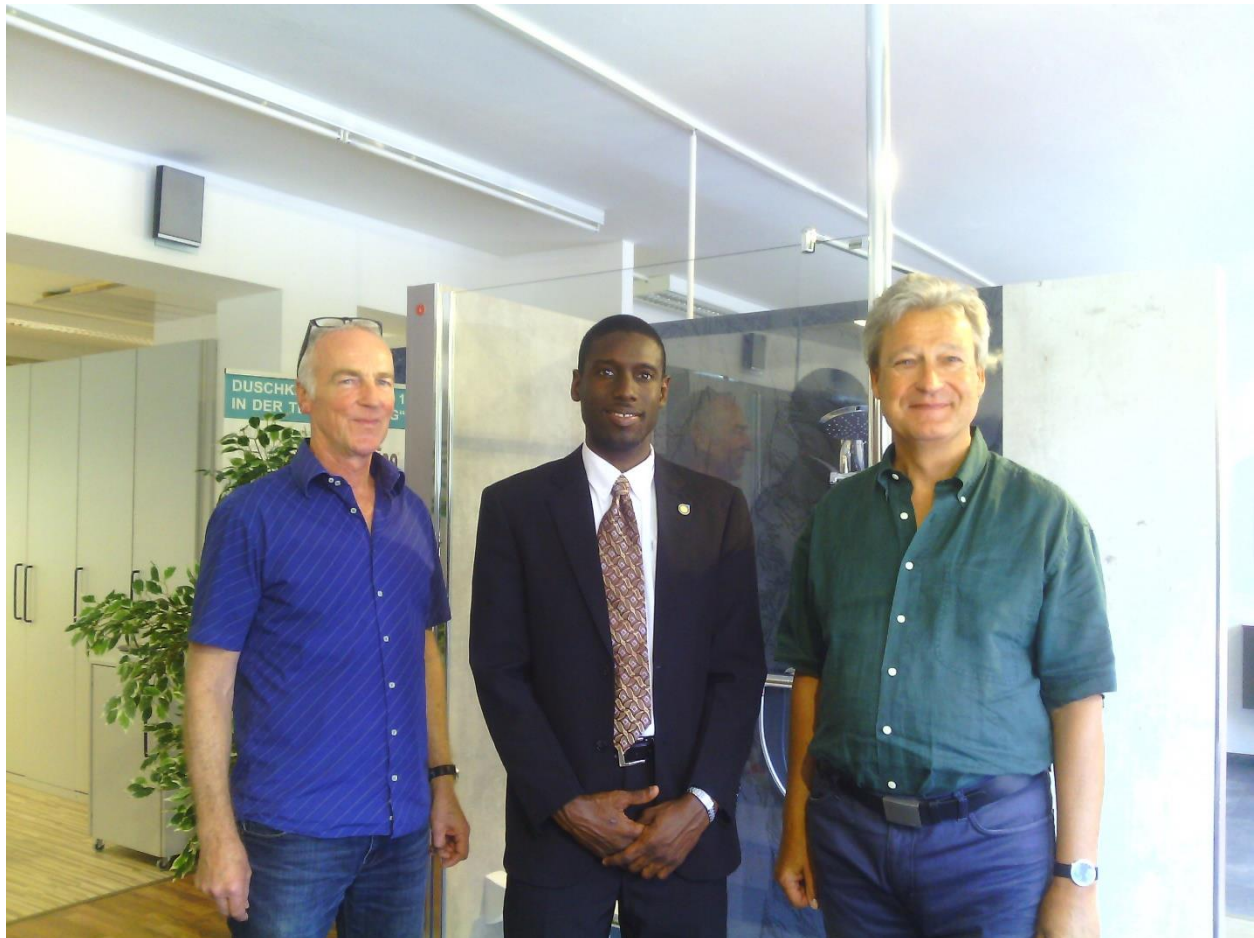


Figure 15: Meeting with Business Owner Mr. Buchberger (left) and being accompanied by ZVSHK representative in Munich (right) after a business engagement

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Another company I visited was in the German city of Munich. The name of the firm was Clemens Buchberger (CB). I was privileged to speak to entrepreneur and owner Mr. Buchberger. The company of Mr. Buchberger is in the business of remodeling bathrooms, which is suited in a lucrative or upper middle class region. The company was founded in 1958, it is a relatively small company employing at least one apprentice yearly. One of the interesting things of this company under the leadership of Mr. Buchberger is the company hired a marketing consultant/specialist. Their focus is to adopt and focus on marketing strategies aimed at raising the bar and value of plumbing. Positioning themselves as the preferred client within their region and the wider Munich city. The marketing specialist does direct marketing, which means he goes to homes and personally directs customers to the benefits of CB. This marketing work also involves advising customers on bathroom design, choices and needs. At times CB sends out flyers and this strategy did work causing over 10,000 flyers to be distributed to date and are receiving between 1-2 calls daily. This is great work it depicts the business and professional approach being carried out by CB. This is the sort of lessons that can be learnt by plumbing professionals and the wider plumbing body in T&T. This brings to light the sterling leadership and practices of CB and the wider vision and innovativeness of the German people. This is definitely needed in T&T we need to engender this kind of mindset and bring about positive and astute business, professional and leadership habits within our nation of T&T. Germany has provided an excellent model of entrepreneurship and innovation. It shows how and why they are a developed society also, it illustrates why many global players have lauded their TVET programmes, both by academics and practitioners.

Another thought again is the role of employing apprentices, employers see the need and relevance of undertaking this task. They see it as putting measures in place to save TVET and their economy. Can we get such a mindset in T&T? I welcome and long for that day when our beloved republic and business owners would embrace and welcome such endeavors without looking for selfish or other gains. T&T needs take hold of best practices and encourage the spirit of apprenticeship which would only bring tremendous benefits to our shores.

Firm of Mr. Wedel



Figure 16: Meeting with Mr Wedel in Biebesheim

On my last days in Germany I had the opportunity to visit a HVAC firm in the small town of Biebesheim very close to the very large city of Frankfurt. I was greeted and picked up at the train station and escorted to his head of operations. The visit commenced with meeting his office and administrative staff. Followed by drinking tea and water and having and discussing about my work in Trinidad and Tobago, WPC and his involvement with World Skills Germany it was always refreshing to learn and share with the Germans. Afterwards I received a tour of his office and he explained what his work involves on a daily basis. Eventually we went out to visit Mr. Wedel projects his company were embarking upon at the moment. The tour took us around the town of Biebesheim seeing a number of projects and employees at work. I even got a chance to see an apprentice along side a craftsman (see image below) working on plumbing

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installtion. This was the only time I had the opportunity to see hands on plumbing and plumbing works in the floors and walls, etc. I also was informed by Mr. Wedel about Germany sytem of water consumption, disposing of water, sewage and treatment methods. I learnt then that all water coming off houses that is rain water consumers have to pay monterary compensation to the state. Not only rain water but all waste and water coming from water closets (WC), bathrooms, kitchens, laundry rooms and from the home are subject to these monies being paid to the government.. Also all potable water to the house hold fixtures for instance: WCs, all taps, showers, bidets, etc.are all subject to monterary payments. Mr Wedel expounded that Germany has a metered system for both soil (WCs and showers) and waste water which includes; water from all sinks in the home.

This metered system came as a shock to me because my beloved T&T do not utilised such a system for water both soiled and waste. There has been talk years now of implementing such a system, however, no such deveelopment at the moment. Our water rates are based on the annual taxable value , which is based on the property value of ones home determined by a governmnet arm that is responsible for building taxes (Warden's Office). Soil waste or waste from the WC in T&T is given a fixed monteray charge. Implementing such a system posses advantages and disadvantages. However it encourages customers to conserve water, thus overall it helps the entire Germany nation to save their water resources. It also allows home owners and enterprise to be very prudent in disposing of water. It provides an opportunity to utilised the bountinies of the rainfall and make good use of a precious resource instead of disposing it right way. It gives citizens a chance to be innovative, enegy or green conscience, and finicially prudent.

Implementing such a system in T&T would be to our nation's advanatge. Firstly we only have two seasons dry season and rainy season, which means six months of dry weather or sunshine(January-June) and six months of rainfall (July-Decemeber). Thus encouraging citizens to conserve water especially in the dry season period would be of great importance to T&T. With the advent of climate change and the changes in the environmnet this puts us in a favourable position to save on this precious resource; water. Because many times in rainiy season rainfall takes very long to accumulate and even in the dry season there are very dry spells with no rainfall. Therefore water management is vitally important for T&T. and moving within this direction can only put us in an auspicious place.



Figure 17: Apprentice alongside Crafts man working on plumbing installation

Manufacturers

Veiga

Veiga genesis was from a good idea and an entrepreneurial challenge that was embraced by a family. Which was some 100 years ago. However, Veiga has undertaken endless growth while remaining under family management and demonstrating healthy rates of progress. Today Veiga's success story comprises courage, passion and a great love for innovation. Veiga brought serious impact on the installation technology market. Employing over 3000 individuals puts Veiga in a favourable position in being a market leader in press technology. Producing installation technology within five sites for consumption around the world is Veiga's story. Quality is a major factor that causes Veiga to be favoured by both the market and customers. Veiga was able to reach a unique position in their organisational life mainly due to excellent service and proximity to their customers. Their motto is summed up by way of determination to exceed expectations: Veiga, a better deal.

Oventrop



Figure 18: End of meeting at Oventrop (just took photo of myself)

Oventrop genesis commenced around 1820-1871 where Arnold Oventrop founded “Arnold Oventrop & Co. Messing- und Broncewaarenfabrik zu Altena” (bronze and brass works). The company employs around 800 people at their facilities in Olsberg and Brilon. The company’s portfolio extends over 4,000 products in sanitary, heating and industrial installations. Oventrop products are sold globally. Oventrop pride itself in being one of Europe leading manufacturers of valves, controls and systems for the Building Services Industry. Oventrop is a proficient partner to the stockists, installers, specifying engineers, contractors and industry. Long term relationship that is beneficial to its partners is what Oventrop holds out to its partners. Oventrop has a vastly competent, qualified and motivated workforce. An integral

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part of Oventrop is to provide in all sectors of their business harmonious partnership and a circumspect way of operating in all lines of work. Education and advanced training are a crucial precondition for entrepreneurial success. An average of 10% of Oventrop staff are apprentices. Top priority is given to job security and protection of the environment. A critical role is played regarding economic stability within the region of Oventrop locations in Germany.

Geberit



Figure 19: Meeting at Geberit

The Company Geberit has grown from a family company into a global entity that has proven its capacity to adjust to a fast changing environment. Geberit owe this expertise to several fundamental values that form the foundation for the Geberit brand – and that will also shape their brand in the future. Geberit has been on the move for more than 140 years. Geberit's story of accomplishments has been molded as much by stupendous personalities as by innovation, partnership, know-how, reliability and quality of life. These values Geberit will continue to ascribe going forward. The

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globally effective Geberit Group is a European leader in the field of sanitary products. Geberit operates as a cohesive group with a very robust local presence in most European countries, providing distinctive added value when it comes to sanitary technology and bathroom ceramics.

The production network involves 35 production facilities, of which 6 are located overseas. The Group is headquartered in Rapperswil-Jona, Switzerland. With more than 12,000 employees in over 40 countries, including Germany. Geberit generates net sales of CHF 2.6 billion. The Geberit shares are listed on the SIX Swiss Exchange; since 2012, the Geberit share has been included in the SMI (Swiss Market Index).

Looking at the work of the three manufactures above; Veiga, Oventrop and Geberit tells of the entrepreneurial spirit Germany possess. Germany do not have natural resources as T&T, the Middle East, and North America, however the advancement and focus on people development is their mantra, their philosophical thinking and approach to development. This is true nation building. I visited all three companies and the level of operations are mind blowing. The high level of machinery, fully automated production lines. I was amazed with the level of technology by the companies mentioned the Germans are far advanced with the level of productivity. All companies export to Europe and outside Europe. Business for them is growing rapidly and they are expanding yearly with extending production space, staff and machinery. The manner in which the Germans have operationalised their HVAC business is an excellent model to learn from. Lessons can be embrace on their entrepreneurial abilities and passion. The three companies are an asset and have added great value to the HVAC system. They provide the necessary products for homes, business, industries, marine and even religious places to keep everyone warm and happy from the elements of nature coldness and heat).

These companies work has been seen in the State Parliament in Germany, Carnival Liberty Cruise liner USA, other Parliaments buildings in Europe, Financial centers, Religious Edifices, Hotels around the world, airports and even football stadiums. They bring a high standard to the world of business in Germany and is highly professional in their approach. Customer service is a top priority for all the companies. I was treated with the highest level of courtesy, respect, professionalism and warmth. I have noticed on each business visit I made to each company at all times guess were entertained from around the globe showing their customers what they have to offer regarding their products and services. Not to mention, my name was visible for all to see in the company that they are expected a guess. I felt so proud and happy to be a plumber representing a great and noble vocation. The three manufacturing giants have operations around the globe, with business partners in Asia, USA, the Middle East, and Europe.

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This level of global power, achievements speaks to the greatness of the German people, economy and commerce. It is a point to note that should be ignored. This provides experiences for all to learn what the spirit of entrepreneurship can bring. It also demonstrates the positive aspects and power of family run business. It also calls our attention to the level of vision these corporations possess. It is said 'without a vision the people perish'. This is highly needed in today's highly charged political environment. Where a lot is being said about vision 2020 and vision 2030. T&T for example had plans for vision 2020 however, due to political demise of the former government administration that plan did not materialized. And there is talk again about vision 2030 in T&T with the opposition (former government) want to bring T&T to develop nation status by 2030, thus the thrust for vision 2030. Kenya has talks about vision 2030 as well, and Kenya's approach to vision 2030 is utilising TVET as their catalyst to bring about develop nation status by 2030 thus, vision 2030. Hence we can see the vital importance of utilising TVET to bring about development of a nation. Germany went ahead more than a century ago with TVET, we see the bountiful results today.

HEALTH AND ENVIRONMENTAL ASPECTS OF PLUMBING

Wasser

Wasser is the German expression of water, wasser or water is the most valued resource in the world without it we cannot survive. Everything depends on the survival of water. The plants, animals, and humans need water, even our human bodies are made up of 75% of water. Water is a much needed and imperative natural resource. Therefore it is very important to treat this wasser with paramount importance. If water is not treat properly and be dealt with in ways not fitting for human consumption it can be very detrimental to our planet and way of life. One such consideration that must be address is the whole issue of Legionella.

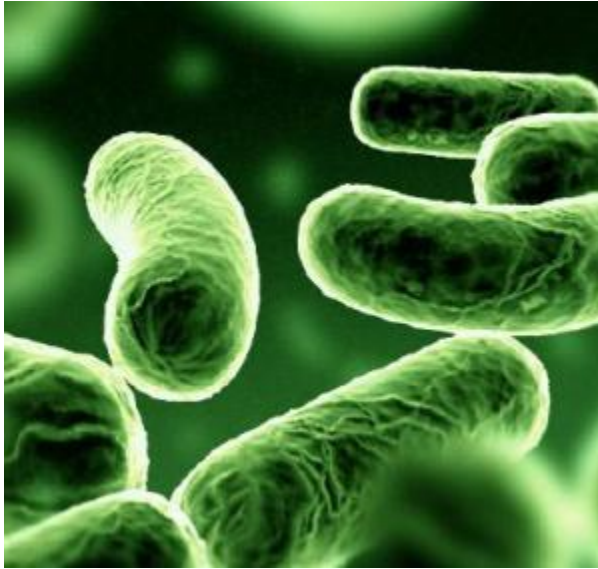


Figure 20: Legionella disease

Source: <https://www.swde.be/en/information-advice/qualite-de-leau/does-legionella-present-danger>

The first published report of *Legionella* being spread through a potable water installation comprise involved renal transplant patients who acquired the infection in a hospital. Since then, *Legionella* has been observed in water systems in many different types of buildings, including hotels, homes and factories, and in ships. *Legionella* has been found throughout engineered water systems, from the mains supply to consumers' taps. Once present in a water system, legionellae can be isolated from a range of sources, unless adequate controls are in place Legionellosis is a collection of infections that emerged in the second half of the 20th century, and that are caused by *Legionella pneumophila* and related *Legionella* bacteria. The severity of legionellosis varies from mild febrile illness (Pontiac fever) to a potentially fatal form of pneumonia

(Legionnaires' disease) that can affect anyone, but principally affects those who are susceptible due to age, illness, immunosuppression or other risk factors, such as smoking. Water is the major natural reservoir for legionellae, and the bacteria are found worldwide in many different natural and artificial aquatic environments, such as cooling towers; water systems in hotels, homes, ships and factories; respiratory therapy equipment; fountains; misting devices; and spa pools. About 20% of the cases of legionellosis detected in Europe are considered to be travel related; these cases present a particular set of problems because of difficulties in identifying the source of infection.

I learnt about these water borne disease will speaking to members of guilds concerning the importance of having running water. The Germans do not have stored water as a source of potable water. I was sharing about T&T's methods of water use, where we utilise tank water as a backup when water is not delivered on time and I was informed by members from the guild that stored water is forbidden in Germany. Germans places high value on the importance of

potable water. The research articulated above, expressed profoundly the effects of legionella it is something that should be taken very seriously. T&T is far behind regarding such developments. Our water systems is predominantly a modified system; where water is send from the Water and Sewerage Authority (WASA) (the body responsible for our water and sewage systems) to storage tanks where it is stored then it is pumped to our homes. Also individuals have an indirect system; where they store water in cases of a delayed water supply or an emergency. Because of the inefficiencies in the water supply by WASA many homes, entities and organisations resort to the modified and indirect water supply systems.



Figure 21: The Rhine River in Germany

The German, Rhine River is a watercourse of Western Europe. Culturally and historically one of the prodigious rivers of the continent and among the most significant channels of industrial transport in the world. It flows from two small headways in the mountains of east-central Switzerland north and west to the North Sea, into which it drains through the Netherlands. The length of the Rhine was long given as 820 miles (1,320 km), but in 2010 a shorter distance of about 765 miles (1,230 km) was suggested. The Rhine River is an international stream since the Treaty of Viennain 1815, it is navigable overall for some 540 miles, as far as Rheinfelden on the Swiss-German border. Its catchment area, including the delta area, exceeds 85,000 square miles (220,000 square km).

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The Rhine has been a model specimen of the sporadic roles of great rivers as arteries of political and cultural unification and as political and cultural boundary lines. The river also has been hallowed in the literature of its lands, especially of Germany, as in the famous epic *Nibelungenlied*. Since the time when the Rhine valley became merged into the Roman Empire, the river has been one of Europe's leading transport courses. Until the 19th century the goods transported were of great importance but relatively small in volume. However, since the second half of the 19th century the volume of goods transported on the river has increased significantly. The fact that low-cost water transport on the Rhine assisted in keeping raw materials prices low. This resulted in the Rhine being a major choice for industrial production: one-fifth of the world's chemical industries are now manufacturing along the Rhine. The river was long a source of political conflict in Europe, but this has given way to international trepidation for ecological protections as pollution levels have risen; some 6,000 toxic substances have been recognised in Rhine waters.

The German people take pride in their Rhine River. Given the many advantages, purposes and uses of the Rhine River, the German population should indeed feel proud of such benefits the Rhine brings. I have seen the Rhine from many places in Germany from Frankfurt, Bonn, and throughout many cities in Germany. The Rhine is a valued and treasured asset not only to the German nation but to the Swiss and other European nations. The Rhine provides a much needed resource to the health and wellbeing of nations. It brings sustainability and life to many. The Rhine offers so much benefits to Germany. It puts Germany in a favourable position being a great transportation hub, tourist benefits, and facilitates trade. It is a means of relaxation to many citizens and tourist during the summer period to have barbeques and enjoying its nature scenery.



Figure 22: Shower with disabled and elderly in mind

I was delighted to see the level of innovation in Germany. The chair above is for an elderly, disable or someone unable to stand while having a shower. It shows the level of care and thought that went into this piece of work. This is what is needed in T&T and around the world. This provides a unique business opportunity for the manufactures of this product. It shows the spirit of innovation, ingenuity and entrepreneurship at work in the German nation. These practices should definitely be encourage by enterprise. Fostering this type of mindset and thinking is what is needed to propel innovation and best practices in industry and commerce. Simplicity demonstrated but, thoughtfulness and idea generation at

display. This need to be embrace whole heartily, this provides an occasion for a niche market for the manufactures involved in this type of business. Embracing this level of care for customers and clients is indeed a step within the right direction. It provides an excellent model for customer; service, satisfaction and retention. It can encourage customers that are disabled, elderly and in need of such service, to look forward to the bathroom knowing that they can have a safe shower. The Germans know what it means to focus on health, hygiene and the environment. This innovation fosters well-being and safety to the most venerable of society as well as the loved ones of such. Thus providing a great sense of appreciation within the wider society. An example many can follow including the wider world and T&T.



Figure 23: WC above floor

The Germany people are a unique and militant nation. What I have noticed throughout Germany with regard to the use of their Water Closet (WC) or toilets is that they are above the floor. Whether it be in a hotel, public place, center of learning or religious environment all the WCs are above ground. I was told by the plumbing installers that the customers like to clean below their fixtures. All like to see below their apparatus, they take pride in cleaning their toilet areas. There are so many lessons to learn from the Germans so much knowledge to gather from their way of life and the way

they do things. The German people are a marvel in all aspects of plumbing, TVET, history and all other facets of life. This provides a good example of fostering a healthy society and environment. This encourages great wellbeing in the nation. Focusing on health is important part of life. Hence adopting such an approach in a toilet area speaks volume to the mindset of the people. It tells a good story of their focus on health and the environment.



Figure 24: WC with apparatus as bidet

The above apparatus in the WC speaks to the Germans ability in innovation and their passion for health and the environment. Normally one can purchase a bidet for cleaning the lower organs of the human body. However the manufactures in Germany came up with this apparatus that goes in the WC bowl and it serves the same function as a bidet. This means that less space can be utilise in the homes or washroom room facilities of individuals or companies also they do not have to purchase a separate fixture, thus saving consumers money. Bestowing great blessings to consumers are always welcome by consumers allowing them the opportunity to make more purchases. This will in turn

drive up sales within the HVAC industry and propel further growth and development within the sector. Innovation like this is great work showing the creativity and resourcefulness of the Germans. Additionally, this modernisation says to the world Germany is contributing to the health and wellbeing of people.

THE GERMAN EXPERIENCE TO BENEFIT T&T

Share Knowledge

One of the things I am hoping to accomplish with the knowledge and expertise in Germany is to present information to Plumbers Association of T&T (PATT) and Ministry of Tertiary Education and Skills Training (MTEST). The PATT is the organisation responsible for all matters relating to plumbing. I already spoke to a member of the PATT about doing some television interviews to highlight what my scholarship from WPC and my German experience can bring for the development of plumbing in T&T. Also I would like to work with PATT for the advancement and betterment of plumbing in T&T. As well I am looking at meeting with the folks at the MTEST to see how this experience can be shared with the wider population and promote what plumbing can do for the development of T&T.

MTEST was created in 2001 formerly known as MSTTE as a division of the Government of T&T to enable the development of a rich, diverse, highly capable and malleable Human Resource pool. Since this time the ministry has seen substantial progress in its capacity and in the delivery of product and services. These initiatives have all been designed for the improvement of citizens of Trinidad and Tobago The Ministry provides a number of programmes which are aimed at the development of a more diversified and knowledge intensive economy. The initiatives that were developed seeks to support a smooth and continuous alteration from primary and secondary education to tertiary education, boosting industrial growth and expansion for enhancing economic stability. Given MTEST role for the development of TVET I will have to sit and share with the players at the ministry how this international exposure and experience can benefit T&T and TVET in positive ways.

Input for doctoral research

Additionally I will be using this information for my doctoral research. My doctoral research focuses on the relationship between organisational leadership and stigma association with TVET programmes in secondary schools. I already begun utilising my experience from BIBB regarding their process in developing new qualifications and how they operate

as an entity. I like their concept on how they develop qualifications as well as how they work. They adopt a concept like shared leadership. According to Pearce and Conger, 2002: (1-3), shared leadership is an activity that is disseminated among members of the team that will emphasize in working in this manner.

Pearce and Conger, 2002: 1-3, further states that this type of leadership is an active collaborating impelling process among individuals in groups for which the aim is to lead one another to the accomplishment of group or organisational goals or both. The authors added that the fundamental difference between shared and conventional models of leadership is that the influence process encompasses more than just downward influence of subordinates by a positional leader.

Pearce and Conger, 2002: 1-3 argues that shared leadership involves a distribution leadership amongst a set of individuals instead of being consolidated in one person who acts in the role of leader. TVET requires change, it needs a system that would allow the best minds and decision makers to work together for the effective and efficient managing of TVET in T&T. Given the present system of operation, TVET will not achieve the returns that is needed at this time. The many issues that are plaguing TVET at present; take for instance policy implementation and policy formation is almost non-existent.

The German people embrace the notions of shared leadership especially at the BIBB institution in forming policy and TVET qualifications. This is something that should be noted and be taken as an example to other countries and even T&T. This highlights that we can adopt leadership practices as the Germans for the progress of TVET on our island. TVET at this times in T&T requires great and decisive leadership to bring about the necessary transformation. Embracing the concepts and philosophies of shard leadership can be of great importance and value to T&T.

IMPARTING EXPERTISE

Experiences

I was able to share my experiences and expertise as a Training Specialist, Tutor, Managing Director and Instructor. I shared with my hosts about T&T's plumbing environment what it entails, the various challenges that engulfs the profession. I was able to highlight the role of the PATT what they do and what they are involve in. Was able to show what is needed to be accomplished in T&T for the development of the plumbing profession. I remembered communicating about my work as a Training Specialist, providing occurrences what I was involved in and my day to

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day operations. I pointed out how this work benefited plumbing and TVET in general. I divulged information as a Training Specialist which incorporated developing training plans by visiting clients and interviewing both employers and apprentices to gather information in order to develop such plans. I also revealed my involvement in plumbing as Managing Director of Azzys Plumbing Services; the company I have own and managed since 2007. I was involved in doing plumbing projects throughout T&T for many type of clients from various classes of customers and many prestigious communities. I disclosed how plumbing is done in T&T, shared the work ethic of the professionals back home and how we need to improve the level of service we provide. Also to embrace better international and best practices. I imparted to the Germans my work as an instructor and my involvement in the Multi-Sector Skills Training (MuST) Programme. Which was a government social programme aimed at alleviating poverty by giving citizens the opportunity to learn a skill to better their lives. I highlighted how the MuST programme was utilised by the government of the day as a mechanism for the development of T&T human capital.

HOW DID THEY BENEFIT?

Expertise/Doctoral Research

I would say the Germans was able to benefit from me being in Germany by my 15 years' experience as a plumbing and TVET professional. Given the deliberations, discussions and shared learning between me and the Germans, that I interacted on my daily basis with from the various business engagements I think I was able to impart a lot of knowledge and expertise about plumbing and TVET in general.

Also my involvement in doctoral research about TVET, stigma, global trends in TVET, organisational leadership gave me an opportunity to highlight the plea of TVET and my share much needed information. I believe this was an ideal learning point and knowledge exchange where the Germans benefited greatly. I remember sharing with the individual at BIBB about global trends in the African countries regarding stigma in TVET and the need to push TVET's development. I could recalled the issue of stigma came up in our discussions will speaking about the German HVAC and TVET systems and programmes. I remembering sharing with the Germans stigma is not new and Germany is not the only nation suffering from such a dilemma I did share that this is a global problem.

According to Branscombe et al (2005) individuals that face stigma have effects that vary widely depending on contextual and individual factors, such as group identify and stigma. Markowitz (1998) states that almost all individuals that are stigmatised are inclined to possess lower levels of psychological wellbeing than those who do not get

stigmatised. Stigma seems to portray itself in diverse areas of research and study. Stigma is real, and it can express itself even in TVET. Therefore, there is a need to explore the stigma associated with TVET programmes in T&T.

In a very interesting newspaper article (April, 2014) titled “Karim: PhD for Tech Voc Education soon”, the minister of MTEST in T&T spoke and articulated that there is a stigma associated with TVET and he wants to introduce a PhD in TVET as a future initiative. The minister was congratulating the first cohort of participants in the Masters in TVET and Work Force Development (WFD) from the University of West Indies in T&T. One can argue that to have a postgraduate programme in T&T that focuses on the development and advancement of TVET is long overdue. The minister further stated that “there is a place in the sun for academia, for pre-technician and technical vocation”. The minister’s comments highlight the idea that there is a stigma associated with TVET in T&T. However, from his remarks it seems that the government is attempting to promote TVET as a choice of education for our society to embrace and be educated by.

According to Essel (2014) one of the severe consequences of stigma associated with TVET in Ghana and other African countries is that many parents and guardians deter and avert their children and dependents from chasing after TVET programmes. This is mainly due to a scarcity of rationed academic prospects in academic advancement and lack of prestige that have typified TVET on the continent over the years. This has contributed to a decrease in admission of students into the TVET programmes in many African countries. Artwatch of Ghana conducted a survey in secondary technical schools and technical institutes in the central region in 2013, and discovered endless regression of enrolment into technical programmes; particularly, carpentry/joinery, block-laying and concreting.

Thus we can see with the above information the issue of stigma and how it is detrimental; to the development of skills and nation building. I did mention to my German counterparts that even though there is apparent stigma with TVET in Germany they have a robust Dual System which is second to none and there is continuous intake of students and they are working on developing TVET on an ongoing basis. The Germany government spends millions of Euros annually for the development of TVET. Also there is low unemployment and a 500 billion Euro turn over as a result of TVET this is excellent news.

Jones et al (1984) states that in order for stigmatisation to transpire, the aspect in question must be associated with negative assessments and stereotypes. There are countless human differentiations that are not usually stigmatised, however there are other differentiations that are habitually subjected to stigmatisation. Those attributes that are conflicting with society’s stereotype of what is “normal” are considered stigma. This is the problem TVET faces even in

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Germany, once there are conflicting norms with society such as academic is the ideal form of education we will continue to have the problem of stigma.

CONCLUSION & REFLECTIONS

The Germany experience was of an elevated nature. The learning exposure and occurrences was second to none. It provided me with a wealth of revelations that would go a long way in my career, professional and personal development, within the capacities of academic and vocational professional. Accepting this scholarship was a worthwhile investment as an individual. Not financially but for academic and personal development. This study tour afforded me many blessings while in Germany. Just to visit such a beautiful country and meet some of the most warm and genuine people is worth the long flight and distance of over 7804 kilometers. Experiencing connecting flights, flight time of over 18 hours, and cold weather on a daily basis that is extremely diverse to T&T was worth it. The food was quite different but I survived, I enjoyed the German bread thou.

One of the things I admired about the German population was adherence to law and order. I look and marvel of the love of the people to be so comfortable in obeying their laws. This experience reminded me that one can be at peace in obeying law. Obeying laws help in the stability and proper functioning of any institution, government or country. This provides a very good example for T&T it points to the fact that law provides the basis for order which in turn provides a stable and well-ordered society.

Research and development is another area I learnt so much from visiting the BIBB institution granted a lot of insights for my personal and professional development. It gave me knowledge, tools and expertise in generating and applying real life research in TVET. I gained hands on capabilities in the German TVET system. The dual system could not go unnoticed it was an overwhelming positive experience to acquire the wealth of proficiencies and learning regarding the German's dual system. The German people should always feel proud of what they was able and continue to achieve in TVET, Business, Entrepreneurship and Innovation, Research and Development and Human Capital Development. The dual system of vocational education allowed the Germans to achieve great successes and mile stones in the advancement of their republic.

Visiting the vocational school in Germany grant me a once in a life time opportunity to see firsthand of the intellectual capacity of the Germans. It gave me a chance to learn how beneficial the vocational education system in Germany is. Additionally it demonstrated the German's strength which is their education system. It also highlighted where there successes lie; commencing development with the young kids.

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Enterprise and entrepreneurship were seen as top priority for the Germans. This has been shown in their approach to business and the management of their enterprises. The Germans have utilised technology to drive their enterprises and this have propel innovation to great proportions. I have seen a lot of entrepreneurship by a lot of family run businesses that I have visited and this have been confirmed by persons from the various guilds that I have interacted with.

The value the Germans have on wasser otherwise known as water in the English tongue, is remarkable. They cherished and take great pride in the Rhine River. It is a treasured asset to the Germans. It is a main source of potable water to their civilisation. The Rhine River is known not only for drinking purposes but also commerce, transportation, trade, leisure activities and tourism. The tourist that come to the Rhine shores are from the region (Europe), internationally and locally; within Germany. This is a major blessing to the republic. The Rhine River provides significant revenue and development towards Germany.

Lastly the willingness to learn and listen are admirable qualities of the German people. I was able to share information and knowledge from my varied life, professional, academic and vocational involvement and know how. There were an exchange of ideas and expertise from the Germans to the Trinidadian (me) and from the Trinidadian (me) to the Germans. They were always open to discuss and learn even though they are well advance to my country.

I have learnt a wealth knowledge that can last a life time. If I have to do this trip over or go back in time I will pick the same country, hope to get Mr. Esser's office again and receive the same guide Mr. Fredrick. It was a great privilege to undergo this scholarship and receive this level of support and education from WPC, Germany and ZVSHK.

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REFERENCES

1. Acquiring Skills Together, Robert-Mayer-Schule Stuttgart, Trade School for Installation and metalwork technology (Pamphlet)
2. Audio Recordings: *Consultations on National TVET Plan*. September, 2014, National Training Agency (Research Department)
3. BIBB (2013) 6th edition; Training regulations and how they come about (brochure)
4. Bearwell, et al. (2004). *Human Resource Management a Contemporary Approach* (4th ed.). England: Pearson Education Limited.
5. Crosby. E (2012): *Exploring Stigma, Identity Gaps and Consumption*: Doctoral Dissertation
6. D. Bloom, D. Canning and K. Chan (2006): "Higher Education and Economic Development in Africa", The World Bank, Africa Region Human Development, Working Paper Series – No.102
7. Experience inside Viega systems worldwide (Pamphlet)
8. Ifo industry data 2013 building services technology
9. Mullins, L. J. (2002). *Management And Organisational Behaviour* (6th ed.). England: Pearson Education Limited.
10. Oventrop Valves, controls+ systems, company profile, 2014 (Pamphlet)
11. Senator (2014) the Honorable Larry Howai Minister OF Finance and the Economy. Budget Statement 2015

Websites

12. About the Ministry
<http://test.gov.tt/About>
13. About WPC
<http://worldplumbing.org/aboutus.html>
14. Rhine River
<http://www.britannica.com/place/Rhine-River>
15. Skills Training and Development
<http://www.transforme.gov.tt/sites/default/files/library/documents/Skills%20Training%20and%20Development%20Sub%20Committee.pdf>
16. *States of the Federal Republic of Germany:*

http://www.nationsonline.org/oneworld/countries_germany.htm

17. *WASA to begin water metering in Tobago next year; Disagrees with senator on calculating rates*

http://www.trinidadexpress.com/news/WASA_to_begin_water_metering_in_Tobago_next_year-135557038.html

18. *What is the Chamber of Crafts?*

<http://www.hwk-muenchen.de/artikel/was-ist-die-handwerkskammer-74,1788,1004.html>

APPENDICES





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