



DAR-ES-SALAAM INSTITUTE OF TECHNOLOGY
IMPROVING SKILLS TRAINING FOR EMPLOYMENT PROGRAM (ISTEP)

INSTITUTIONAL PROFILE
AND
PARTNERSHIP TERMS OF REFERENCE



December 2014

Canada

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1. INSTITUTIONAL MANDATE

1.1 Background History and Current Roles of DIT

Dar es Salaam Institute of Technology (DIT) was established in 1997 through Parliamentary Act Number 6 of 1997. The major functions of DIT are to provide facilities for study, training and conduct of applied research and consultancy activities in the disciplines approved by the DIT Act. The same also gives DIT mandate to conduct own examinations and grant own awards as approved by the National Council for Technical Education (NACTE).

The history of the Dar es Salaam Institute of Technology dates back to 1957 when the then Dar es Salaam Technical Institute (DTI) which was established with the main task of providing vocational training in the country. The Institute is currently undergoing both administrative and academic transformation to match the intended structure so that it may perform the envisaged roles and functions. The expectations and aspirations of Tanzania towards DIT are very high as expressed in the National Technical Education and Training Policy of 1996, National Higher Education Policy of 1999 and Tanzania Development Vision 2025 of 1999. Evolution of DIT and its training programmes is summarized in Table 1 below.

Table 1: Evolution of DIT and Training Programmes

Evolution of DIT and Training Programmes			
S/No	Year	Name of Institute	Course Offered
1	1957	Dar es salaam Technical Institute	<ul style="list-style-type: none"> • Vocation Training • Technical secondary school courses • Technical Assistants
2	1962	Dar es salaam Technical College (DTC)	<ul style="list-style-type: none"> • Technicians –Under London City and Guilds Training Programme
3	1964	DTC	<ul style="list-style-type: none"> • Ordinary Technician Diploma (OTD)
4	1970-1972	DTC	<ul style="list-style-type: none"> • Full Technician Certificate (FTC) • Diploma in Engineering (DE)
5	1991	DTC	<ul style="list-style-type: none"> • Advanced Diploma in Engineering (ADE)
6	1997	Dar es salaam Institute of Technology (DIT)	<ul style="list-style-type: none"> • Full Technician Certificate (FTC) • Advanced Diploma in Engineering (ADE)
7	2004	DIT	<ul style="list-style-type: none"> • Full Technician Certificate (FTC) • Advanced Diploma in Engineering (ADE) • Bachelor of Engineering Degree (B.Eng)
8	2005		<ul style="list-style-type: none"> • FTC ▪ Ordinary Diploma in Engineering ▪ ADE ▪ Bachelor of Engineering (B. Eng) ▪ (Development of Ordinary Diploma in Mining Engineering curriculum)
9	2006		<ul style="list-style-type: none"> ▪ Ordinary Diploma in engineering ▪ Ordinary Diploma in Mining Engineering ▪ Bachelor of Engineering (B. Eng) ▪ MSc. Facilities Management

Evolution of DIT and Training Programmes			
S/No	Year	Name of Institute	Course Offered
10	2012		<ul style="list-style-type: none"> ▪ Ordinary Diploma in Engineering ▪ Bachelor of Engineering (B. Eng) ▪ MSc. Maintenance Management ▪ (development of Ordinary Diploma in Oil and Gas Technology Curriculum)
10	2013		<ul style="list-style-type: none"> ▪ Ordinary Diploma in Engineering ▪ Bachelor of Engineering (B. Eng) ▪ M. Eng. Facilities Management ▪ M. Eng. Maintenance Management ▪ (development of Ordinary Diploma in Oil and Gas Technology Curriculum)
11	2014		<ul style="list-style-type: none"> ▪ Ordinary Diploma in Engineering ▪ Bachelor of Engineering (B. Eng) • M. Eng. Facilities Management • M. Eng. Maintenance Management • Master in Computational Science and Engineering • Development of Ordinary Diploma in Oil and Gas Technology Curriculum)

1.2. Vision, Mission, Values and Strategic Direction

a) Vision

The Vision of the Dar-es-Salaam Institute of Technology is to become the leading provider of high quality Engineering Education, Research and Consultancy within Tanzania and the East and Central African Region.

b) Mission

In order for the DIT to become the leading provider of high quality academic outputs in line with its Vision, the Institute should realize the following four main objectives, which reflect its Mission.

- To provide access to higher quality technical education and training for students in Applied Sciences, Engineering, Entrepreneurship and related disciplines as well as to conduct relevant research and consultancy.
- To promote the development and usage of appropriate technology that meets national, regional and international needs and standards through skills and practical-oriented training, research and consultancy.
- To cooperate with the Government of the United Republic of Tanzania and the private sector in establishing centers of excellence to combat national catastrophes such as draught, floods, disease, hunger and pollution amongst other things.
- To foster honesty, respect and responsibility, personal development, lifelong learning and innovation.

c) Values

The values which underpin the above mission are those of integrity, openness, commitment to quality and professionalism.

d) **Aims – The Strategic Direction**

The aims of the Dar es Salaam Institute of Technology are:-

- (i) Economic viability
- (ii) Expansion of courses and student numbers to satisfy national requirements
- (iii) Quality improvement in design and delivery of courses
- (iv) Expansion of appropriate high quality research and consultancy services
- (v) The development of active international links and activities.
- (vi) To raise the profile and reputation of DIT both within Tanzania and internationally
- (vii) To improve the work, social and living conditions of staff and students at DIT
- (viii) To create greater gender balance and quality among students and staff

1.3 Institute's Corporate Strategic Plan

DIT has a 15-year Corporate Strategic Plan (2003/04 – 2017/2018) through this strategy the Institute is expected to realize the following key milestones:

- Consolidate capacities in human and physical resources to facilitate a significant expansion of student enrolment
- Intensify national and international relations
- Enhance competitiveness of academic programmes offered
- Foster research and enhance expert services to the community
- Achieve a more balanced flow of resources
- Achieve national reputation in terms of relevance and quality of outputs.

2. INSTITUTIONAL NEEDS AND EXPECTATIONS

Description of the overseas partner's needs and expectations of the Canadian partner

- Undertake Occupational Analyses in the extractive industry sectors, small scale mining employers and artisanal entrepreneurs in identifying the competences required for specific trade or employment areas and safety certification requirements for extractive industry employees
- Undertake Occupational Analyses in the extractive industry sectors in identifying the competences required safety certification requirements for extractive industry employees
- Address environmental issues in relation to mining specifically targeting sector in the new or revised curriculum
- Develop training programmes for small scale miners and artisanal entrepreneurs
- Develop Programme Advisory Committees to assist in definition of competencies and design of mining curriculum at the local, regional, and national levels;
- Capacity building to management and teaching staff that include in Canada training to practically learn how to identify training needs of extractive industry sector in design and deliver training programmes.
- Capacity building in mining career expectations, guidance and counselling
- Advice on modalities to ensure opportunities for on-the-job training for our trainees

2.1 Sector and Occupation for Program Development

In addressing the seemingly ineffective training by the training institutions, the industry feels that it cannot wait for too long to have graduates with the much needed flexibility to keep up with new and

emerging technologies, as such they have been developing several strategies to intervene the situation. DIT as a training institution has identified a major hindrance to secure Industrial Practical Training (IPT) placements of students from training institutions being lack of safety certification for students who can work in the extractive industry.

Small Scale Miners are key players in the mining sector, as through their activities they provide livelihoods to many people directly and indirectly. However, majority of artisanal small-scale miners have never attended formal training on mining hence operate in unsafe surroundings (occupational/environment-wise). To that end short-term and tailor made courses for artisanal small scale miners and providers of related supporting services will be developed and delivered under the auspicious of this project.

2.2 Key Expectations of Canadian Partners

Expectations from Canadian partner:

- Facilitating DIT on developing and delivering short and long courses to meet the immediate requirements of environmental technicians in mining sector
- Proven knowledge and skills to design and manage Competence Based Education Training (CBET)
- Proven experience to identify training needs of mining sector and develop and deliver training programmes that effectively address the identified needs.
- Competent teachers and management team able to share experience coach and perform on the job training to Tanzanian counterparts.
- Competent staff able to share expertise in designing training curriculums in line with mining technological changes.
- Competent and experienced staff to assist in developing technicians and engineers programs in mining and environmental technology.
- Experienced staff in delivering short term training on mining related and environmental awareness programs.

2.3 ISTEP Required Outputs

- Training needs of mining sector in Tanzania identified, including small-scale miners.
- Setting up training programs relevant for employment in mining sector within formal and informal economy.
- Design and conduct training programmes that address the needs of mining sector
- Develop Modality to continuously monitor training needs of mining sector
- Develop Modality to secure on-the-job training for DIT trainees and trainers
- Develop and use training evaluation, monitoring and feedback system.
- Creation of regional and international networks in order to transfer and share knowledge, skills, experience and resources in the mining sector
- Build relationships and communication between and among private and educational sectors, professional associations and community at large in order to harmonize sustainable and efficient use of manpower graduating from DIT to enter the mining labour market.
- Establish Institutional partnership with industries and other support organizations.
- Expose teaching staff to modern field and teaching technologies

Specific Expectations:

- Enhancing employment and self-employment opportunities for Tanzanians in mining sector.
- Introduction of new technician training programmes in environmental technologies in mining sector
- Build an institutional relationship between and within private and public sector with our Canadian counterpart
- As a Training Institution to improve our programme delivery using Competency Based Education Training (CEBT) approach.
- Contribution to poverty alleviation by supporting the private sector development through training of the workforce.
- Increase annual enrolment and retain students to meet the ever widening gap between demand and supply of quality graduates in the country
- Enhance employment and self-employment opportunities for Tanzanians in mining sector.
- Build capacity for the tutors therefore DIT becomes a lead Tanzania's technical institute in extractive industry technologies.
- Build an institutional relationship between and within private (national and foreign) institutions and public sector with our Canadian counterpart
- Promote information sharing and further actions and research regarding sustainable and environmentally friendly mining technologies for poverty alleviation

3. PROGRAM DEVELOPMENT

There are three training programmes to be developed under this project; these comprise of two short term programmes and one long term programme, these are as follows:

- (a) Safety, Health and Environmental certification courses for oil and gas fields
- (b) Small scale and artisanal mining training courses
- (c) Bachelor of Mining Engineering Programme

3.1 Program Level(s) and Duration to be Developed

1. Safety, Health and Environmental certification courses for oil and gas fields	Three weeks modules
2. Small scale and artisanal mining training	Three weeks
3. Bachelor of Mining Engineering Program	Three years

3.2 Anticipated Admission Criteria for Program

1. Safety, Health and Environmental certification courses for oil and gas fields	Pre - IPT students from Universities and Pre-IPT students from Technology Institutes and pre-employment NTA level 4, 5, 6 and 7
2. Small scale and artisanal mining training	Holders of PML and employees from legal practitioners of ASM miners, owners and aspiring miners
3. Bachelor of Mining Engineering Program	Prospective candidates for this program will be those possessing NTA6 or equivalent.

	Application to this programme will be through the Centralized Admission System (CAS) coordinated collaboratively by the Tanzania Commission for Universities (TCU) and the National Council for Technical Education (NACTE)
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3.3 Curriculum Approval and Accreditation Process

1. Safety, Health and Environmental certification courses for oil and gas fields	There will be no need for external approval and accreditation for these training programs; however, for the program to match stakeholders' needs, assessment and analysis there will be a need for the certification course is recognized/approved/accredited by recognised agencies.
2. Small scale and artisanal mining training	
3. Bachelor of Mining Engineering Program	This will require partnership intervention, especially in conducting Situation Analysis (LMI) in curriculum development process and program accreditation by National Council for Technical Education (NACTE)

3.4 Training Equipment and Tools Currently Available for Program Delivery

At present the Civil Engineering Department under which Mining Section fall under has about 46 academic staff with various level of education ranging from Certificate to Ph.D. It is anticipated that by 2015 the Department will have more than 55 academic staff all meeting NACTE standards. The increase will be due to increased enrolment of students and returning of academic staff from studies. In addition, DIT has modern computing, E-Learning (video conferencing) facilities through the ITCoEICT (super computer) textbooks, reference books procured through TEA (Tanzania Education Authority) and partnership with other institutions, grant and sponsors that can cater for all its students. Considering the improvement of the programme it was necessary for DIT through World Bank (Quick Win Project) grant to establish extra laboratory space to supplement the existing facility at DIT and also to strengthen the capacity of mining engineering academic staff. In long term development which started on 2005/2006 fiscal year. The Government funded the project to construct an eleven (11) storey building (teaching tower), this construction is now in its final stages and is expected to be completed by September 2015. In this floor, additional rooms for lecturers and laboratory will be available. Further, TEA has funded vertical extension of the existing library building to cater for increased enrolment and introduction of new training programs. DIT have additional space in its Mwanza Campus and a newly acquired space at Muyunga in Sumbawanga which can be used to accommodate any proposed training that may require more space.

Table 2: Infrastructure/ Building and equipment existing at DIT

S/N	Type	Number	Total floor area (M ²)
1	Offices	45	540
2	Classrooms	26	2180
3	Laboratories	4	1232

S/N	Type	Number	Total floor area (M ²)
4	Workshops	18	4620
5	Modern Computer Laboratories	7	
6	Dormitories/Block	5	10,000
7	Assembly Halls	2	80
8	Cafeterias (Students)	1	258
9	Staff Canteen	1	975
10	Staff quarters	5	430
11	Libraries	2	435
12	Overhead Projector	10	
13	Multimedia Projector	5	
14	Students Chairs	1700	
15	Students Desks	1500	

Through the EFE Project (Project – 05) Mining Engineering section has procured a range of equipment, books, mining software and computers. Also, there are donations from mining companies and training institution in Canada and of used mining equipments that are aimed for use in practical training.

3.5 Linkages Local Employers

DIT is currently is collaborating with mining industry to conduct the practical studies on the selected sites below, however, more sites are needed to improve the practical training, we are currently facing acute problem of getting industrial practical training placement of the students particularly from big companies e.g. barrack, Anglo Gold, resolute to mention a few. The firms that have been very supportive are the local firms as listed below:

Table 3: Companies and sector entrepreneurs supporting DIT on IPT Placement

SN	Company	Mine Site	Location
1.	C Kadeo Co Ltd	C Kadeo Mine	Shinyanga
2.	Caspian Company Ltd	Caspian Wazo Hill	Dar es Salaam
3.	Esteem Construction Company Ltd	Even Quarry	Bagamoyo – Coastal Region
4.	Anglogold-Ashanti Gold Mine	Geita Gold Mine	Geita Region
5.	Hari Singh Co. Ltd	Hari Singh Quarry	Bagamoyo – Coastal Region
6.	Tanzania Zambia Railway Authority	Kongolo Quarry	Mbeya
7.	Matundasi ASM Development Company Ltd	Matundasi Gold Mine	Mbeya
8.	Mumusi Co Ltd	Mumusi Co Ltd	Chunya
9.	Nyanza Road Works Co Ltd	Nyanza Road Works	Mwanza
10.	Nyanza Salt Co Ltd	Nyanza Salt Mine	Mpanda
11.	Shanta Gold Co Ltd	Shanta Gold Mine	Chunya - Mbeya
12.	Tancoal Energy Ltd	Tancoal Energy Ltd	Ruvuma
13.	Tembo Quarry	Tembo Quarry	Geita
14.	Barick Gold Africa Ltd	NMGM Gold Mine	Mara
		Buzwagi Gold Mine	Shinyanga
		Bulyanhulu Gold Mine	Shinyanga
15.	STAMIGOLD Co Ltd	Tulawaka Gold Mine	Biharamulo
16.	Tanga Cement Co Ltd	Tanga Cement Quarry	Tanga
17.	Mbeya Cement Co Ltd	Mbeya Cement Quarry	Mbeya
18.	STAMICO	Kiwira Coal Mine	Mbeya
19.	TanzaniteOne Co Ltd	Merelani Mine	Arusha

3.6 Field Attachment Opportunities

DIT Civil Engineering Department, Mining Section operates two types of field attachments:

- Weekly Field Practices, and
- Annual Industrial Practical Training (IPT) for 10 weeks.

Weekly Field Practices are conducted in rotation by the three levels (NTA Level 4, NTA Level 5 and NTA Level 6), each level attending field practices once every 3 weeks. The main challenge in this area is at times we fail to attend field practices due to lack of transport. The Institute bus is old and has often breakdowns. At this juncture, the Institute hires private buses, though expensive.

Weekly Field Practices are conducted in mine sites which are within the proximity of the Institute, not more than 200 km away.

IPT is conducted at every end of academic year for NTA levels 4 and 5. Applications are sent to stakeholders as indicated in section 3.5 above, for each stakeholder to accept and accommodate a given number of students for 10 weeks. The Institute sends Lecturers to visit and assess students in the field in the 9th week of their IPT.

3.7 Linkages/Partnerships

It is acknowledged that most training institution can not run programs single handedly because some have more experience and equipped than the others, some are conveniently more located than the others, etc. To cope with competence requirements in the delivery CBET training programs, DIT have already made several efforts, as follows:

- Linkages between Institutions have been created;
- Partnerships between Institutions and Industries have been created, even though it requires strengthening; student attachment for practical training in industry demonstrate the linkages with the industry;
- Linkage with parties that may involve increasing the awareness of students to the world of work has been established;
- DIT is exploring possibility for attachment of its training staff with the mining industry has been sought to enable them get familiar with vocational needs they are training the students for;
- DIT has been conducting training program reviews to ensure the relevance of courses continuation and curriculum of tertiary educational and training institutions.
- Obtain regular feedback on its graduate competence from the industry to enable identification of improvement opportunities.

The DIT has established several formal partnerships with domestic and international universities, colleges and institutes e.g Cambrian College, Federated School of Mines (FSM), POLIMI, Hanze University, MRI etc.

4. PROJECT CONTEXT

The growth of the extractive industry has led to economic growth and creation of new job opportunities. Being a specialized field, the extractive industry requires specialized skills. Consequently, the country finds itself in a position where the demand for qualified technical personnel by the growing sector cannot be met by the available few local personnel. Due to the realization of this deficit, some of the country's training institutions have initiated programmes aimed at addressing the shortfall. While numerous efforts have been initiated by various training institutions, the employers face a challenge of providing placement for the students from the institutions for both short Industrial Practical Training (IPT) and permanent employment as they require specialized occupational health and safety training and certification before they can be accepted to work in both onshore and offshore work environment.

4.1 Capacity building in Development of Safety, Health and Environmental Certification Courses for Oil and Gas Fields

There are no institutions currently offering certification training program in oil and gas in Tanzania. Trainees have to be trained overseas. The University of Dodoma (UDOM) and University of Dar es Salaam (UDSM) are running a degree program in Petroleum Engineering, UDSM offers has started offering Masters Degree Program in Petroleum Geoscience. At the technician level Mineral Resources Institute (MRI) offers Petroleum Geoscience, Vocational Education and Training Authority (VETA) is training artisans in Oil and Gas occupations. All training by the UDOM, MRI and VETA requires Industrial practical Training (IPT) field attachment. DIT has identified gap which calls for establishment of a certification program for prospective IPT trainees and graduates ready to join Oil and Gas sector. DIT has therefore realised that developing Oil and Gas Certification programme will timely bridge this gap. It is DIT's goal to ensure all possibilities are explored such that this programmes is designed to produce graduates who will satisfy the needs of employers and other stakeholders.

Based on this fact that this programme will be the first of its kind in Tanzania, DIT academic staff members will require capacity building in both development of the courses and the delivery of the same. This will be achieved through this partnership.

4.2 Capacity building in Development of Short-term Training for Artisanal and Small Scale Mining Industry

On the other hand, Artisanal and Small scale mining (ASM) sector, in which most of the operators are artisans face a number of challenges in executing of mining operations. These include;

- (i) Lack of Best Practice approach for ASM operations as small scale and artisanal miner do not have skills to achieve such requirement.
- (ii) Despite the fact that, very few women are employed in the mining sector, many are engaged in providing various services to support the industry. As part of initiative to promote gender equality in extractive industry DIT require capacity strengthening in developing strategies to deal with gender issues and encourage the participation of women in mining field and technical education at large.

It is intended that this program will increase earnings and incomes from their activities, as the project intends to conduct a range of short-term and tailor made courses and workshops to address their needs. Also the project will serve as a platform of dialogue for enhanced collaboration between large and small-scale miners. Furthermore, under the auspicious of this project, artisanal and small-scale

miners will be given an exposure on safe practices in mining and environment conservation methods. Courses on marketing, business development, accounting and health and safety will be developed and delivered to the small-scale miners. This will strengthen their capacity to become more productive and generate employment for the local people.

4.3 Capacity Building in Development of Undergraduate Curriculum in mining Engineering

Mining Engineering Technician Programme started during the 2006/07 academic year with an initial enrolment of twenty five (25) students, over the years the enrolment has been expanding and to date the enrolment has doubled to 60 students. The following is a general structure of the mining engineering technician programs offered:

- 3 years program - three exit points each year (Basic Certificate, Certificate and Ordinary Diploma)
- 10 – weeks industrial practical training (Year 1 and 2)
- 3rd year independent projects (First semester and second semester)

Considering the number of graduates to date and the requirement of the extractive industry to date, it is high time DIT should develop an undergraduate competence based education and training program in mining engineering to bridge the gap at this level. To be able to develop this program DIT will require partnership intervention in capacity building in conducting LMI for the program and conduct occupational assessment with various stakeholders in extractive industry.

4.4 Institutional Strengthening and Capacity Building

DIT is a fully accredited institution by the National Council for Technical Education (NACTE). It offers a wide range of full-time, part-time and professional engineering qualifications and courses. In line with the NACTE competence based modular training system <http://www.dit.ac.tz/>. To produce skilled, creative and flexible technicians who can meet both short and long term needs of extractive industry. DIT has undertaken several initiatives for institutional framework and capacity strengthening to accomplish its mandated responsibilities to insure that mining engineering training programme is developed to match the manpower requirement for the mineral sector. In order to meet and maintain national and international set standards for skills and competence in extractive industry sector DIT requires the following interventions:

- Build capacity for the tutors therefore DIT becomes a lead Tanzania's technical institute in extractive industry technologies.
- Expose teaching staff to modern field and teaching technologies
- Develop Modality to secure on-the-job training for DIT trainees and trainers
- Capacity building to management and teaching staff that include in Canada training to practically learn how to identify training needs of extractive industry sector in design and deliver training programmes.
- Capacity building in mining career expectations, guidance and counselling
- Advice on modalities to ensure opportunities for on-the-job training for our trainees
- Develop Programme Advisory Committees to assist in definition of competencies and design of mining curriculum at the local, regional, and national levels;

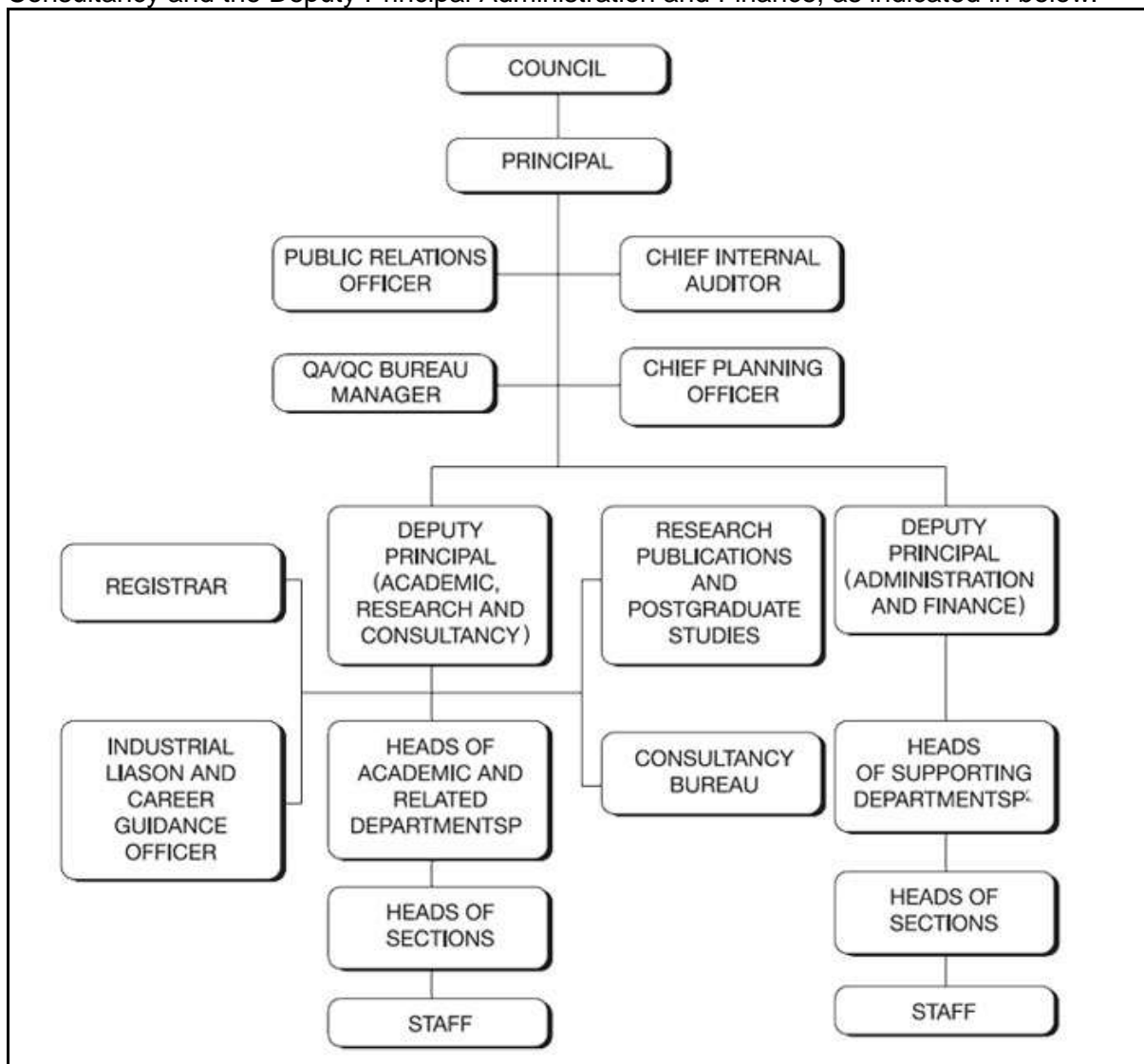
To realize this objective, DIT needs capacity strengthening in accessing knowledge and technologies, development of current staff performance and improvement of current training space to enrich its effort

to improve student's access to knowledge and technology, provide adequate number of qualified technical staff and improve the cooperation, research and services to the mining industry.

5. INSTITUTIONAL DETAILS AND DATA

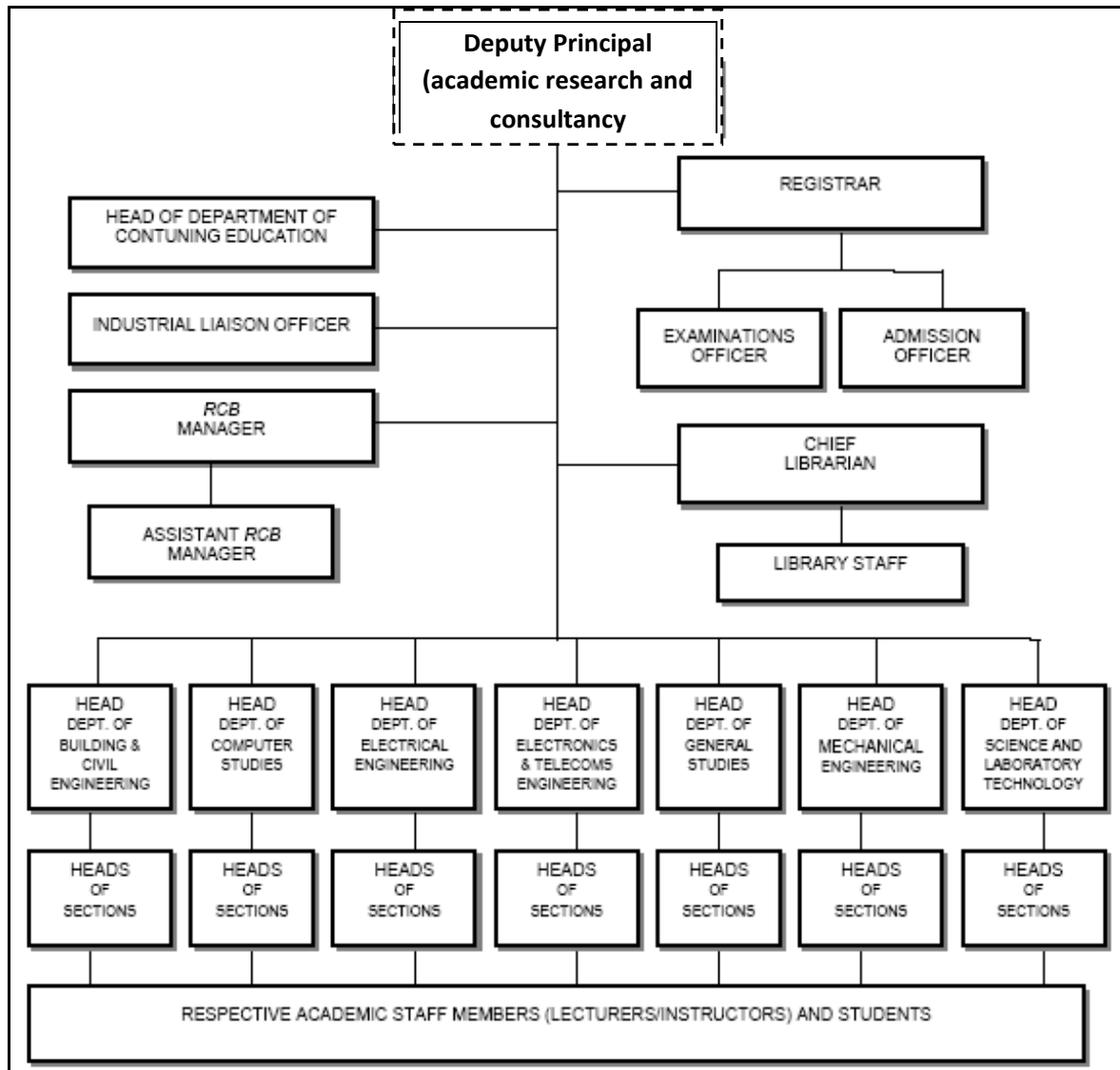
CURRENT DIT ORGANIZATION GRAM

The top most organ of DIT is the Council consisting of 12 members. The Chief Executive of the Institute is the Principal who is in-line supported by the Deputy Principal Academic Research and Consultancy and the Deputy Principal Administration and Finance, as indicated in below.



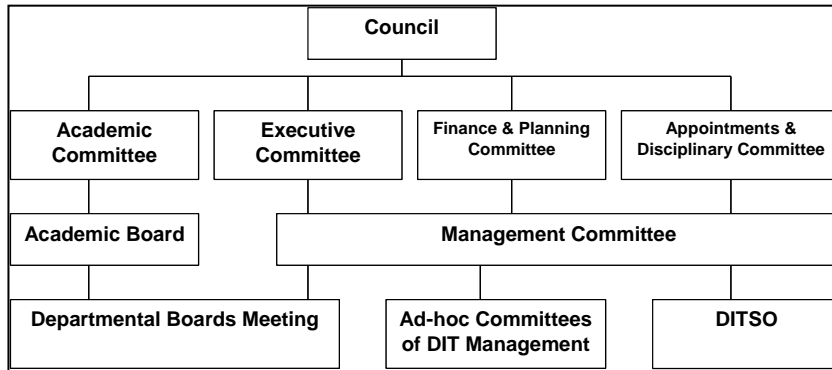
ORGANIZATION STRUCTURE WITHIN THE OFFICE OF THE DEPUTY PRINCIPAL ACADEMIC RESEARCH AND CONSULTANCY

The Academic Departments under the Office of the Deputy Principal Academic Research And Consultancy include the Departments of Building and Civil Engineering; Computer Studies, Electrical Engineering; Electronics and Telecommunications Engineering; General Studies; Mechanical Engineering; and Science and Laboratory Technology. Other related departments include the Office of the Registrar; the Department of Continuing Education; the Industrial Liaison Office (ILO); the Institute Consultancy Bureau (ICB); and the Library. The working relationship between the various officers under the Deputy Principal Academic Research And Consultancy is illustrated below.



PARTICIPATORY ORGANS OF DIT

Apart from the office holders who are implementers, the Institute reaches most of its decisions following a participatory approach. At operational level, the major participatory organs are the DIT Academic Board, DIT Management Committee and Departmental Meetings. The Academic Board is the top most organ of the DIT Management. It receives matters from the Departmental Meetings and other *ad hoc* committees that may be established by the DIT Management to look into various academic issues.



DIT faculty (instructors) qualification level

Table 4: Academic Staff and Levels of Qualification

	# Total	# of Men	# of Women
College or Institute Diploma	25	21	04
Trades Certification	27	25	02
Bachelors' Degree	59	42	17
Masters' Degree	77	60	17
PhD	27	18	04

The average teaching workload for faculty (instructors)

- Number of teaching hours/week: Varies from 8 to 12 hours/week depending on the rank of Instructors/lecturers
- hours are spent on teaching theory: 2-3 hours
- hours are spent on supervising practical exercises: Normally, practical are 3 hours.
- Number of courses/semester depends on the programme, approx. 8 – 11 modules/semester.

Table 5a,b and c below shows enrolment trend of DIT students from 2002 to 2013 in summarized form the detailed data can be availed on request.

Table 5a: summarised enrolment trend of DIT students from 2002 to 2013

	OD 05			OD 06			OD 07			OD 08		
	2005/2006			2006/2007			2007/2008			2008/2009		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
CE	74	03	77	98	06	104	76	06	82	79	03	82
MINE	-	-	-	-	-	-	21	01	22	27	04	31
CoE	27	09	36	33	06	39	47	19	66	39	08	47
EE	51	05	56	50	02	52	54	03	57	51	01	52
ETE	35	11	46	45	05	50	71	09	80	92	10	102
SLT	20	04	24	20	04	24	15	10	25	33	09	42
ME	37	01	38	38	00	38	50	01	51	60	05	65
Total	244	33	277	284	38	307	334	49	383	381	40	421

	OD 09			OD 10			OD 11			OD 12			OD 13		
	2009/2010			2010/2011			2011/2012			2012/2013			2013/2014		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
CE	88	06	94	102	07	109	115	15	130	129	22	151	151	21	172
MINE	34	01	35	28	01	29	37	03	40	35	7	42	39	21	60
CoE	61	07	68	62	18	80	62	07	69	76	18	94	93	08	101
IT										17	00	17	60	03	63
EE	59	05	64	64	07	71	70	06	76	77	07	84	95	09	104
BEE	-	-	-	-	-	-	21	02	23	25	07	32	37	11	48
ETE	100	09	109	92	10	102	92	17	109	93	23	116	102	18	120
SLT	25	07	32	55	14	69	36	11	47	52	18	70	49	33	82
ME	45	00	45	93	01	94	71	06	77	107	04	111	95	04	99
RET	-	-	-	-	-	-	-	-	-	-	-	-	43	04	47
CST	-	-	-	-	-	-	-	-	-	-	-	-	21	01	22
MMTF	-	-	-	-	-	-	-	-	-	-	-	-	18	02	20
Total	412	35	447	496	58	554	504	67	571	611	104	717	803	135	938

Table 5b: Under Graduate (B.Eng) 3 Years

	B.ENG 04			B.ENG 05			B.ENG 06			B.ENG 07			B.ENG 08		
	2004/2005			2005/2006			2006/2007			2007/2008			2008/2009		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
CE	46	07	53	69	02	71	73	05	78	69	07	76	90	08	98
CoE	-	-	-	18	10	28	25	02	27	11	07	18	14	04	18
EE	22	09	31	25	06	31	36	03	39	35	05	40	56	06	62
ETE	36	21	57	28	08	36	40	09	49	27	13	40	42	04	46
ME	29	06	35	22	00	22	38	01	39	21	00	21	31	01	32
Total	133	43	176	162	26	188	212	20	232	163	32	195	233	23	256

	B.ENG 09			B.ENG 10			B.ENG 11			B.ENG 12			B.ENG 13		
	2009/2010			2010/2011			2011/2012			2012/2013			2013/2014		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
CE	74	05	79	67	03	70	42	07	49	99	13	112	110	13	123
CoE	20	03	23	28	02	30	50	10	60	59	04	63	75	12	87
EE	55	07	35	54	05	59	57	04	61	75	01	76	97	14	111
ETE	28	07	35	34	03	37	57	11	68	55	13	68	82	10	92
ME	38	00	38	40	00	40	14	00	14	43	00	43	70	02	72
SLT	-	-	-	-	-	-	-	-	-	-	-	-	17	06	23
Total	215	22	237	223	13	236	220	32	252	331	31	362	451	57	508

Table 5c: Under graduate (general course) 4 years

	B.Eng GC 10			B.Eng GC 11			B.Eng GC 2012			B.Eng GC13		
	2010/2011			2011/2012			2012/2013			2013/2014		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
CE	13	02	15	47	03	50	50	01	51	44	06	50
CoE	23	01	24	32	02	34	44	05	49	32	05	37
EE	30	00	30	44	02	46	41	10	51	38	04	42
ETE	38	02	40	29	04	33	38	04	42	35	10	45
ME	00	00	00	00	00	00	11	00	11	16	01	17
SLT	-	-	-	-	-	-	-	-	-	-	-	-
Total	104	05	109	152	11	163	184	20	204	165	26	191

6. INSTITUTIONAL PARTNERSHIP IMPLEMENTATION COMMITMENT

The project will be implemented jointly by the partners. Each partner has specific roles and responsibilities. DIT commitment will be as outlined below.

- a) Selection of appropriate staff to be trained
- b) Making available office space and workshop for the established programmes
- c) Make available other non teaching staff to coordinate and support the project
- d) To provide appropriate training facilities other than those to be supplied under the project.
- e) To establish the structures that will support the project, specifically PAC and other internal committees.
- f) Collect and keep project data, timely reporting on activities conducted.
- g) Facilitate and coordinate training to the small scales miners and SMEs.

7. SUPPORTING AND BACKGROUND DOCUMENTATION

The purpose of DIT is to provide training and to explore the training & development practices in Tanzania to align with the occupations in extractive industry sector needs. Training Institutions like DIT provide training & development to bridge gap which will assist in realising set national set development policies. National Development policies cannot be attained until they have competent and developed work force, To get the competent work force, organizations focus on Training & development programme are associated with perceived Institutional support. Below are some of the Policies Perspectives in Relation to Technical Education and Training.

7.1 The Tanzania Development Vision 2025

The major aspiration of Tanzania as outlined in its Development Vision 2025 (1) is to transform its economy from a low productivity agricultural economy to a semi- industrialized one led by modernized and highly productive agricultural activities. In realizing its aspiration, the Government is aiming at improving the quality of education and health infrastructures, raising the proportion of the rural and urban population. The nation, therefore counts on engineering community to be one of the major vehicles for realization of this aspiration, since most of them depend on the ability of technicians to receive, improve and maintain technology and technological changes as a permanent on-going process.

7.2 Poverty Reduction Policy:

The Poverty Reduction Strategy Paper, 2001 has specified key priority sectors towards poverty reduction and sustainable national development including education, health, water and agriculture. Higher priority is also given to the development of Roads, Lands and Energy sectors to support the other sectors. Most of the indicated Interventions that are necessary to develop these priority sectors can be realized by having adequate and competent technical personnel.

7.3 The Technical Education Training Policy

The Technical Education Training Policy of 1996(2) advocates among other things the following:

- The need for Tanzania to have sufficient trained technical manpower of all categories;
- The need to impart technical skills in our youths and adults to enable them to go into sustainable self-employment (social demand strategy);
- Inculcate a science and Technology in Tanzania Society (Education Strategy) and;

- The need to improve manpower balance among the technical cadre of engineer/technologist, technician and craftsman from the current ratio of 1:2:14 leading to internationally accepted ratio of 1:5:25.

In this case, therefore, training programmes should be developed to attract more students commensurate with the critical mass of professionals required at all levels to efficiently respond to development challenges of the nation.

7.4 The National Higher Education Policy

In recognizing the rapid changing needs of higher education in Tanzania, the National Higher Education Policy of 1999(3) calls for far-reaching measures. It advocates the following among other things:

- expansion of enrolment at all levels of education,
- liberalization of higher education,
- the need for specialized skills,
- the need to keep up with new and emerging areas of technology, e.g. Food Technology, Biotechnology, extractive industry Technology, etc,
- the need for greater entrepreneurship,
- competitive financing of education based on actual unit costs and
- the liberalization of higher education and training sectors.

Therefore the training programmes to be developed should take cognizance of the changing demands of manpower and technology taking place in the country and worldwide.

7.5 The National Sustainable Industrial Development Policy

The National Sustainable Industrial Development Policy (**SIDP**), 1996 — 2002(4) articulates the framework for Tanzania's industrial development within short, medium and long term perspective. This policy advocates for the establishment of capacities in areas with clear potential of gaining competitive advantage through the process of learning and application of efficient technology,

- Promotion of light capacity goods and manufacturing industries,
- Promotion of engineering industries that manufacture tools and appliances and
- Development of the education system with due emphasis on technical education.

The development and promotion issues addressed in the SIDP require parallel infrastructure development and upgrading which includes transportation infrastructure. It is anticipated that the development of the new curricula will ensure that the demands for technicians and engineers in the areas identified by the sustainable Industrial Development Policy are met.

7.6 The National Science and Technology Policy:

The National Science and Technology Policy of 1996(5) outlines the framework for regulation of flow of technology to reduce excessive dependence on imported technologies and guide the development of National Scientific and Technological capability and capacity. The Policy advocates the following:

- expanding the investment in human resources with the view to Increasing capability to manage science and technology,

- paying special attention to applied research, relating research priorities to national development goals,
- increasing overall capacity for transfer of technology (local and foreign) and research and development,
- creating a conducive environment for unleashing creative and innovative potential of the people of Tanzania and
- solving problems in key economic, productive and social welfare sectors such as industry, agriculture, energy and social welfare services.

Therefore, the designed programmes should aim at producing intermediate level experts in science and technology with good mix of theory and practice, at the same time the curricula and programmes should be more flexible and adaptable, to contemporary changes in Science and Technology worldwide in the area identified by the Policy.

7.7 The Mineral Policy of Tanzania

The Mineral Policy of Tanzania, 2009 envisages that the mineral sector should contribute significantly towards industrial development, employment creation, social and economic infrastructural development; income generation, foreign exchange earnings and Government revenue. This policy advocates for the following:

- To stimulate exploration and mining development;
- To ensure that mining wealth supports sustainable economic and social development;
- To minimize or eliminate the adverse social and environmental impacts of mining development;
- To promote and facilitate mineral and mineral - based products marketing arrangements;
- To alleviate poverty especially for artisanal and small-scale miners.

DIT has tailored its curricula in the production of technicians and engineers who possess the required knowledge, skills and attitudes commensurate with the needs of a booming and competitive extractive industry sector of the national economy.

7.8 National Energy policy

Upstream Petroleum exploration and development activities in Tanzania are governed by the provisions of the Petroleum (Exploration and Production) Act 1980. This Act vests title to petroleum deposits within Tanzania in the State and is designed to create a favorable legal environment for exploration by oil companies.

The National Energy policy objectives are:

- Exploitation and utilisation of the country's abundant indigenous resources such as hydroelectricity, coal and natural gas.
- Reduction of dependency on imported petroleum products.
- Stemming of wood fuel depletion and use of wood fuel in a sustainable and ecologically sound manner.
- Development of indigenous manpower capacity in the development of the energy sector.

The downstream petroleum activities are governed by the National Investment (Promotion and Protection) Act, 1990, and qualify for the incentives and guarantees provided for in the Act. The purpose of the National Investment (Promotion and Protection) Act is to establish rules for governing investment in Tanzanian enterprises, particularly foreign capital. Under the Production Sharing

Agreement (PSA) arrangements currently in place in Tanzania, the Oil Companies are expected to undertake a training program, employ qualified Tanzanian citizens.

8. PHOTOS OR LINKS TO INSTITUTIONAL WEBSITE

The Dar es Salaam Institute of Technology (DIT) is located in the Dar es Salaam city centre, at the junction of Morogoro Road and Bibi Titi Mohamed Street. For more information please visit our website <http://www.dit.ac.tz>



DIT female students working with an exploration company during their industrial practical training.

