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Board Chair statement

ENG (ADV) MENYE MANGA



Dear Reader;

The Engineers Registration Board (ERB) invites you to this Magazine edition dedicated to the Structured Engineers Apprenticeship Programme (SEAP). Project Supported by Kingdom of Norway through Norwegian Embassy. This edition showcases the program's journey, achievements, and future direction through compelling stories, testimonials, and insightful content.

A key driver for initiating RNE Sponsorship was the low number of women graduating and registering as professional engineers in Tanzania. SEAP, a hands-on training initiative, directly addresses this by providing comprehensive exposure in compassing design, fieldwork, and substantial management components. This approach has been incredibly effective in improving the gender ratio within the engineering profession.

The Norwegian Government's sponsorship over the past 15 years has been instrumental in SEAP's profound impact. Their support has boosted the percentage of female engineers from a mere 3% to an impressive 13%. This significant leap is a clear sign that Tanzania is on track to achieve a 50/50 gender ratio in engineering in a foreseeable future, a goal the ERB Board is immensely proud of.

While engineering was once seen as a male-dominated field, ERB is actively working to dismantle these societal perceptions and challenges faced by women engineers. Having witnessed their capabilities firsthand, the Board attests to women engineers' competence, loyalty, and dedication. The ERB calls upon all stakeholders to join hands in promoting these talented professionals for the betterment of the country.

The ERB extends its sincere gratitude to the Royal Norwegian Government, the Government of Tanzania under Her Excellency Dr. Samia Suluhu Hassan, ERB Management, and all stakeholders for making SEAP a resounding success. We hope you enjoy reading the magazine and are inspired to contribute to the promotion of women engineers in Tanzania.

REGISTRAR WELCOMING STATEMENT

It is my pleasure to welcome you to this special edition of the Engineers Registration Board (ERB) Magazine, which focuses on the empowerment of women engineers through the Structured Engineers Apprenticeship Programme (SEAP).

The ERB, a statutory body established under the Engineers Registration Act Cap 63, is responsible for monitoring and regulating engineering practice across Tanzania. This mandate is executed by a dedicated Secretariat led by the Registrar and supported by four departments: Registration and Technical Affairs, Professional Development, Enforcement, and Finance and Administration.

This edition highlights the impact of RNE, which was launched in 2010 with the support of the Royal Norwegian Government. While SEAP began as a broader initiative in 2003, its gender-focused phase started in 2010 to address the low number of female engineers in the country. The programme aimed to empower women engineers with practical experience, confidence, and professional recognition.

SEAP's first phase (2010–2015) aimed to register 290 female graduate engineers as professional engineers, promoting gender balance in professional training and leadership roles. Its second phase (2016–2021) targeted the registration of an additional 200 women, building on the success of the first phase and continuing efforts to empower women in both public and private sectors.

The results have been remarkable. From just 96 registered female professional engineers in 2010, the number had increased to 756 by 2021. Many SEAP graduates have not only achieved professional registration but have also established their own firms, earned promotions, and assumed leadership positions in various institutions.

SEAP has played a vital role in addressing gender disparities in the engineering sector, creating meaningful opportunities for women and contributing to national development. The programme's focus on hands-on experience and professional growth has significantly narrowed the gender gap in engineering and had a ripple effect on the wider economy.

On behalf of ERB Management, I extend heartfelt gratitude to the Royal Norwegian Government for their consistent support over the past decade. I also thank the Government of Tanzania and all stakeholders who have contributed to the programme's success.

I invite you to explore this Magazine and be inspired by the achievements of these women engineers who continue to break barriers and shape the future of the profession.

ENG. BERNARD KAVISHE





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ERB'S SEAP PROGRAM: EMPOWERING GRADUATES, CHAMPIONING WOMEN IN ENGINEERING



SAMIA'S LEADERSHIP DRIVES JPM MAGUFULI BRIDGE TO 92% LOCAL CONTENT, HAILS SEAP TRAINEES

Her Excellency Dr. Samia Suluhu Hassan, President of the United Republic of Tanzania, continues her steadfast leadership and commitment to completing large scale strategic infrastructure projects that hold significant longterm value for the country.

Among these flagship initiatives is the JPM Magufuli Bridge, located between Kigongo and Busisi in Mwanza Region. The bridge is a landmark project launched in 2019 with a total investment of TZS 718 billion has now reached 92% completion, with a remarkable emphasis on local content participation.

Speaking during the official inspection ceremony held on June 19th, President Samia emphasized that while infrastructure development remains a top priority, equal focus is being placed on skills transfer and capacity building among Tanzanians. She underscored the importance of empowering local professionals, particularly young engineers, through direct involvement in complex, large-scale projects such as this.

"It is our hope that the knowledge and experience gained by our youth through their full participation in this project will be a significant advantage for them personally and for our nation as a whole," said President Samia.

"This is a positive step towards Tanzania's dream of building long-span bridges using our own local experts. We are already seeing the light of self-reliance from a distance — and I believe we will get there."



Furthermore, a call has been extended to all young people who participated in the construction of this bridge to continue utilizing their acquired expertise in the construction of other bridges.

It was highlighted that the **JPM Magufuli Bridge** construction project saw 92% local participation, including laborers, experts, and engineers. Notably, among these local contributors were 16 SEAP trainees who gained crucial hands-on experience.



NORWAY'S AMBASSADOR HIGHLIGHTS IMPORTANCE OF SUPPORTING FEMALE ENGINEERS IN TANZANIA

The Norwegian Ambassador to Tanzania, Ms. Tonne Tinnes, has reaffirmed her government's commitment to supporting the growth of engineering in Tanzania, with a particular focus on empowering female engineers.

Speaking during the SEAP trainees Induction course, event organized by the Engineers Registration Board (ERB), Ambassador Tinnes noted that the Royal Norwegian Embassy (RNE) has supported the Structured Engineering Apprenticeship Programme (SEAP) for nearly 15 years; enabling young Tanzanian engineers especially women to gain vital practical training for them to become professional engineers.

"Norway is proud to be a partner in this program because we recognize the critical role engineers play in a country's development," she said.

"Just like Tanzania, Norway started its journey of industrialization by utilizing its natural resources, first through fisheries, shipping, and later hydropower.

This created a demand for engineers, which at the time we had to import before developing our own capacity." Ambassador Tinnes explained that engineering has been the backbone of

Norway's transformation, particularly after the discovery of oil and gas in the 1970s.

She highlighted parallels with Tanzania, which had only 10 registered engineers in 1968, stressing how external expertise including Norwegian engineers helped shape the country's infrastructure development.

She emphasized that this history of mutual learning inspired Norway's long term support for engineering education in Tanzania.

"Engineering has been the driving force behind Norway's growth, and when we began working in Tanzania decades ago, we



brought our knowledge and expertise to power plants and energy projects here," she said.

On gender equality, Ambassador Tinnes was firm in her message:

"Tanzania not only needs engineers, it also needs female engineers. Engineering remains a male dominated profession, and that is why

Norway has invested in helping women gain the skills and confidence to thrive in this field."

She congratulated all women who have passed through the SEAP program, encouraging them to use their knowledge, support one another, and build strong professional networks.

She also called on male engineers to mentor and collaborate with their female colleagues to strengthen the profession collectively.

"The growing number of women joining the SEAP program is a great source of pride. Your success is not just personal it is a step forward for Tanzania's engineering sector and for the nation as a whole," she said.

"Tanzania not only needs engineers, it also needs female engineers.

Engineering remains a male dominated profession, and that is why ,

Norway has invested in helping women gain the skills and confidence to thrive in this field."







BUILDING HER OWN LEGACY: ALVIRA MICHAEL'S JOURNEY FROM SEAP TRAINEE TO CONSTRUCTION ENTREPRENEUR

In the competitive world of engineering, breaking through and making your mark can be a significant challenge. But for Alvira Michael, a determined graduate engineer and a beneficiary in the RNE-SEAP apprenticeship program, the path has been one of inspiring growth, culminating in the launch of her very own construction company.

Alvira, who specializes in water resource and irrigation engineering, enrolled in the SEAP program in 2022. This initiative, generously sponsored by the Royal Norwegian Embassy (RNE), provides crucial support for young engineers like Alvira, enabling them to gain invaluable practical experience.

“Through SEAP training, I gained the courage to learn from various projects, and from my bosses and trainers,” Alvira shares. “That’s how I started my own company, a labour-based company that handles small construction projects.”

Her company tackles essential tasks such as grass cutting along roadsides, drainage cleaning, and culvert construction. And her hard work is already paying off: “All these are from the experience I acquired from the RNE-SEAP Program,” Alvira says proudly. “And good enough, our company just won a tender in Geita Region – we’re starting to implement that project soon!”

Building Skills, Building Confidence

Alvira's journey with SEAP began after graduating from the Water Institute with a major in water resource and irrigation engineering. The RNE sponsorship was a game changer, minimizing challenges during her three-year training. She received monthly allowances, health insurance, and essential safety gear, allowing her to focus entirely on honing her skills.

The program immersed her in a variety of water projects, where she quickly gained trust and took on management roles, particularly in irrigation. “I managed the construction of three tanks in Katavi region,” she recounts. “One with a capacity of 200,000 liters, another of 1,200,000 liters, and a concrete tank for water supply in the villages of Maji Moto and Ausevia.”

Her contributions extended beyond just construction. Alvira also played a part in the design and implementation of clean water and sanitation projects in different villages within Nkasi district, Rukwa region.

Currently, Alvira is working with Audacity Intercom Limited in Dar es Salaam, focusing on the construction of water civil structures like water tanks, retaining walls, and soil erosion control structures. As she approaches the completion of her SEAP training this year, Alvira Michael stands as a testament to what dedication, practical experience, and strategic support can achieve. She's not just building structures; she's building a legacy.



THE ERB’S REGISTRAR NARRATES HOW RNE PARTNERSHIP HAS REVALORIZED FEMALE ENGINEERS

This year celebrating 15 years of success story of a partnership between Royal Norwegian Government and United Republic of Tanzania

Through the Royal Norwegian Embassy (RNE), in Dar es Salaam, and the Engineers Registration Board (ERB), we have been implementing a programme that aims to bring gender equality in the engineering profession.

According to him, engineering like many other science professions is male dominated, the ratio is one to seven (1/7) in favors of boys.

So we have three phases of projects which has been financed by RNE embassy in Tanzania it started way back in 2010 it was a five years project, we were generously supported with Norwegian 13. 9 Kroners whereby 290 girls benefited. A total number of that respective girls where put into SEAP program, a three years programme and by the time they graduated 288 got registered as professional and, when ERB did survey, a good number of them 87 got promoted to managerial positions and some even established their own firms.

Based on the aforementioned success, in 2016 ERB again received Norwegian 16.4 Kroner’s whereby a total number of 200 girls were trained and when ERB last time counted, 180 were registered and am sure if ERB conduct another survey ,the remaining number might have been registered by now.

Eng. Kavishe further noted that when they tracked 117 have been promoted on managerial positions and five (5) have established their own firms.

He stressed that at the end of phase two there was a study which was evaluation on how the project feared and this study helped ERB to improve the design of phase three.

Phase three was very much informed by the previous two phases so in 2023 we benefited again from a grant of 18 Norwigian Kroner but, the design was different like I said. This has benefited 100 female graduates; the program is still running 80 in Mainland and 20 Zanzibar

Adding, that it was for the first time the project extended in Zanzibar because one among other recommendations required ERB to extend the programme in Zanzibar.

About Female Future Leaders Programme

Explaining also Eng.Kavishe pointed that even when female engineers graduate, ERB have noticed that because of societal pressures, obligations as a female they do not move fast into managerial positions hence they step out of professions to and take of the families and when they come back men have already advanced and gone very far.

“But, I think I would like to say a few words about Norway, so that you understand why we did pick this kind of a project and why we are so proud of being a partner. Norway is very different from different, Tanzania is part of the global South and we are part of the global North,” she said.

About STEM support program (SSP)

Another product for phase three is to intervene at an earlier stage because the education system in Tanzania both girls and boys start up equal at primary schools there is equality and there are some places girls are ahead of boys but, post puberty when they go to secondary school and when STEM becomes an option they step out of science and they opt for other subjects and slow down on mathematics which is the bedrock on which engineering is built.

Therefore, to correct this ERB intervenes before girls segregate at secondary schools by sending them role models to encourage them to stick in STEAM and ERB further advocates to support them in teaching, learning of STEM at secondary level.

According to him, they have a programme dubbed SSP which is also enjoying RNE support whereby teachers are sent, soft libraries, laboratory equipments and the advocacy for STEM this will also increase the number of girls in STEM it can achieve gender equality within with 10 years if the will be expanded.

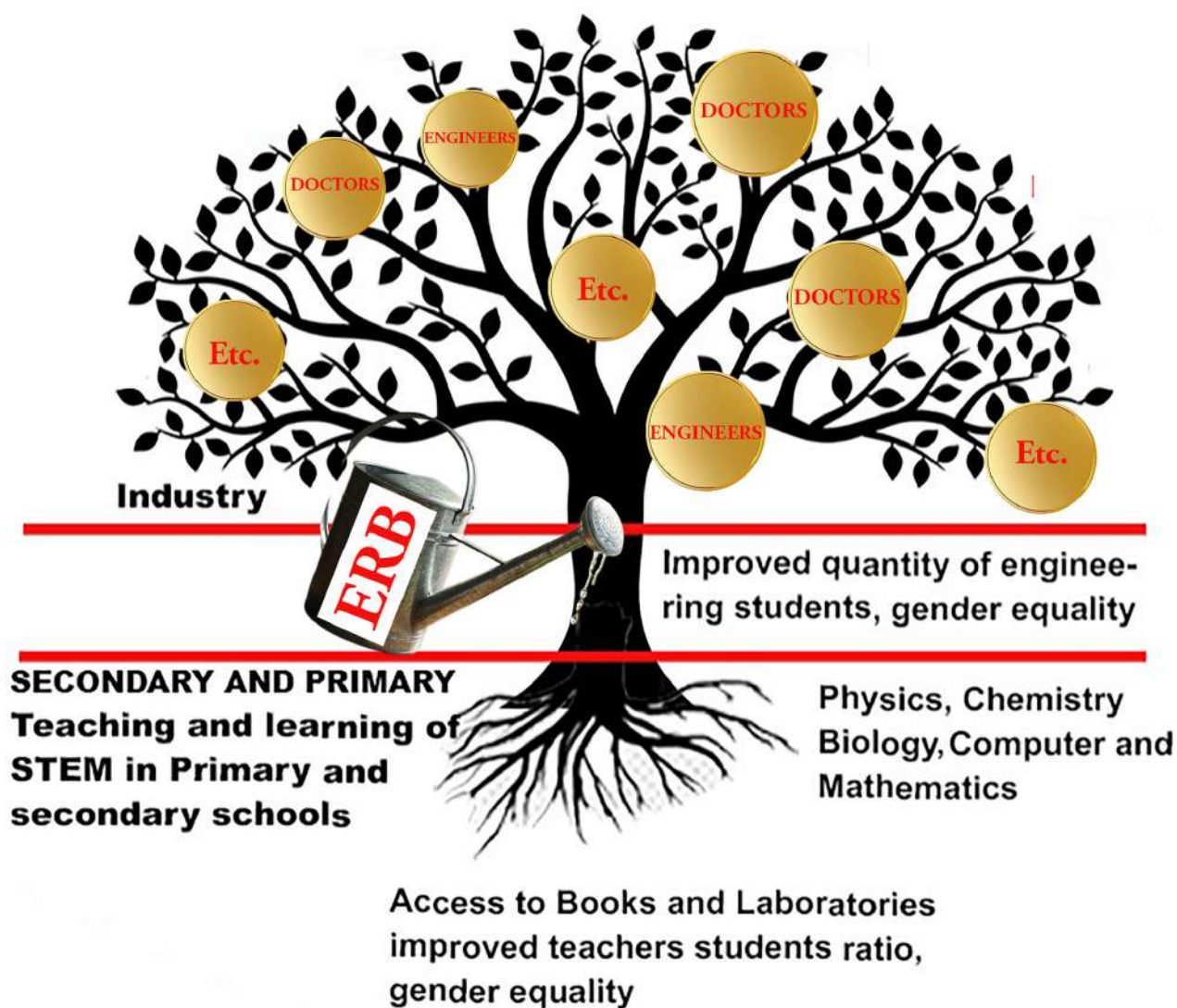


"This programme support has a positive bias towards girls; we support more girls at schools, mixed schools more than we do to boys only schools. I finally want to thank you very much the Norwegian government through RNE in Dar es Salaam for this support, the project has been a model which has been copied by the World Bank, we have such several projects with the World Bank, American government and currently ERB is still negotiating along with some other partners.

But, also again the evaluation has helped them to build advocacy and now public procurement Act has been amended to require contractors and consultancy to implement government projects to provide placement to graduate engineers and this will help a lot because our issues are finances and placements, is now mandatory, we give credit for the evaluation done by ERB through the support from RNE and also would like to thank you the government. ERB is also grateful to state institutions like TANESCO, TANROADS, Tarura they take a substantial number of trainees, on the other hand the government under leadership of her excellence Dr. Samia Suluhu Hassan she recently built 26 very big schools in all regions there are for girls only, science schools and we think these interventions will hasten the gender equality target and it's ERB's wish to extend the SSP programme in schools to equip them with laboratories, teachers and soft libraries they will be competitive at the universities with boys and we can get gender equality we truly believe that when nurtured at these 26 regional schools we will have results which is measurable within a very short period of time.

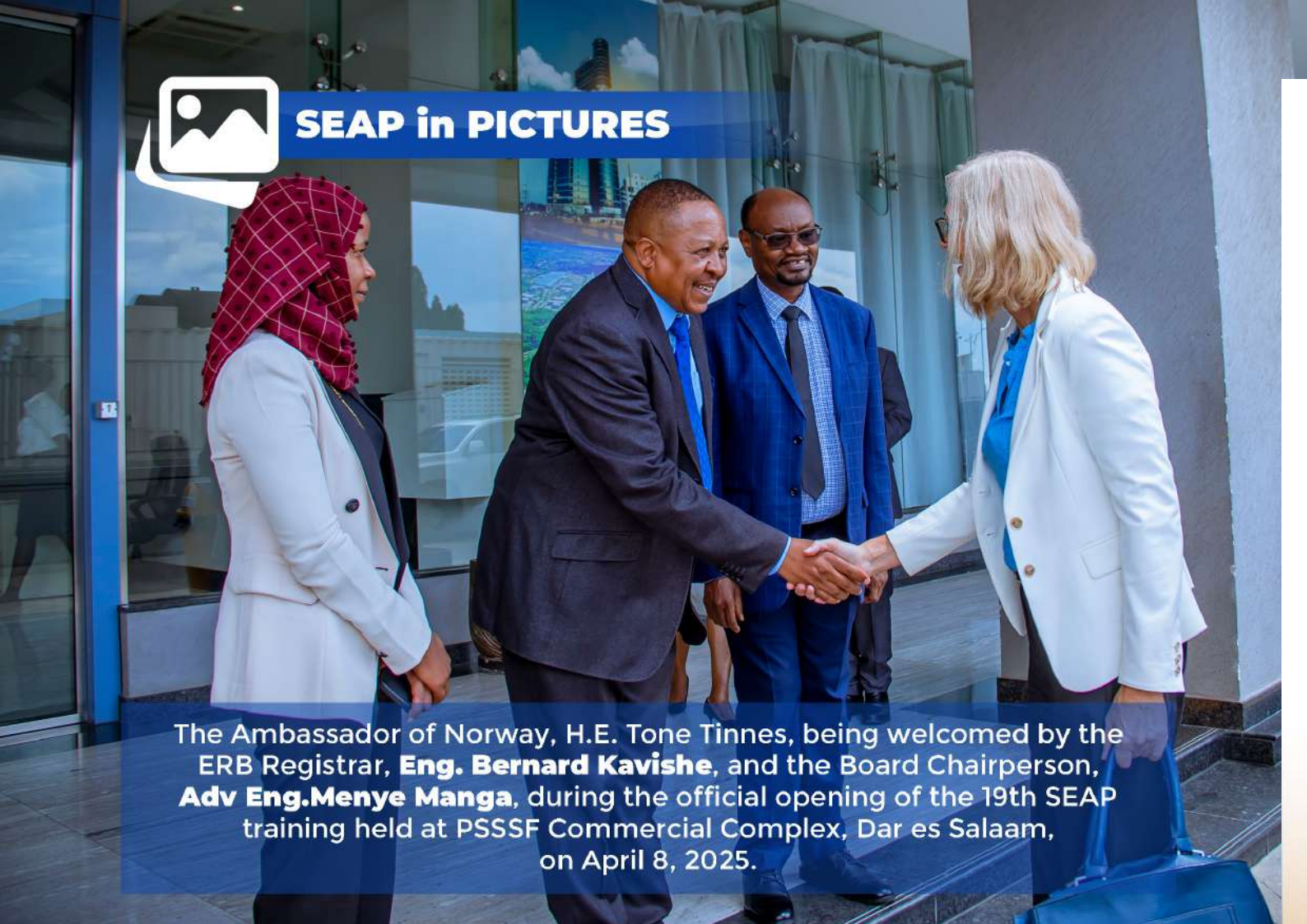








SEAP in PICTURES



The Ambassador of Norway, H.E. Tone Tinnes, being welcomed by the ERB Registrar, **Eng. Bernard Kavishe**, and the Board Chairperson, **Adv Eng. Menye Manga**, during the official opening of the 19th SEAP training held at PSSSF Commercial Complex, Dar es Salaam, on April 8, 2025.



A vibrant traditional dance performance welcomed H.E. Ambassador Tone Tinnes during the SEAP induction seminar, showcasing Tanzanian culture and hospitality."



H.E. Ambassador Tone Tinnes delivers inspiring remarks during the SEAP induction seminar, encouraging graduate engineers as they embark on their three-year practical training journey.



H.E. Ambassador Tone Tinnes presents a certificate to one of the female graduate engineers during the SEAP induction seminar, symbolizing Norway's continued support for empowering young women in engineering



"H.E. Ambassador Tone Tinnes in a group photo with ERB leadership and female graduate engineers during the 19th SEAP induction seminar held in Dar es Salaam, aimed at empowering young women in engineering through practical training and mentorship.



TOP GOVERNMENT OFFICIAL SHARES HER SEAP JOURNEY TO ENGINEERING

The Permanent Secretary of the Ministry of Water, Eng. Mwajuma Juma Waziri, a graduate from the University of Dar es Salaam (UDSM-CoET), as the civil engineer specialized in Water Resource management shared the challenges she faced after completing her undergraduate degree in 2008.

She remained unemployed for four months, and securing a job proved to be a major challenge.

She applauded the Engineers Registration Board (ERB) for giving her the opportunity to participate in the SEAP program.

Through ERB, she was assigned to a training centre and began her practical training immediately.

"If it was not for the SEAP program, I might have stayed at home for an entire year without starting or even finding a place to do my practical training. I thank ERB for this great program that will benefit all engineers across Tanzania," she said.

Eng. Mwajuma also applauded the sponsors of the SEAP program for recognizing the importance of equipping women with practical skills in engineering. She noted that when she graduated with her engineering degree, female students made up less than 20 percent of the class.

"Looking at it closely, it is not that women cannot do it. From my experience, many female engineers I have met are incredibly hard working, often even more dedicated than their male counterparts. The most important thing is to continue supporting women so they do not lose hope, because there's a misconception that engineering is difficult not just in school, but even in the workplace," she said.

I really thank you ERB for this program, there other wish practice the program but they do not conection on where to start.

She also added that through SEAP programme graduate able to be connected at place to practice his/her professional, it could be in the ministry or anywhere else around the world also through ERB who are the initiator of the programme it helps to coordinate the engineer's professionals to grab different opportunities pertaining to their careers.

The Permanent Secretary encouraged girls not to fear the field of engineering, emphasising that it is not as difficult as it seems. She said the world has changed, and technology today is more accessible than it was in the past.

"To produce more engineers, we must begin at the grassroots level. It's our collective responsibility to promote engineering from the O-Level and A-Level stages. If a student dislikes mathematics at an early stage, it becomes difficult for them to pursue the field later on they end up abandoning it altogether," she said.



SEAP Programme Opens Doors for Female Engineering Graduates in Zanzibar

Zanzibar — Ilham Abdurahman, a civil engineer graduate from American University of Ras Al Khaimah from United Arab Emirates, is among the beneficiaries of Engineering Apprenticeship Programme (SEAP) a transformative initiative funded by the Royal Norwegian Embassy (RNE) to empower young women in engineering.

Speaking about her experience, Ilham based in Zanzibar, expressed her gratitude for the opportunity, noting that the SEAP programme has come at a crucial time when securing employment is increasingly challenging—particularly for fresh graduates who often lack the required hands-on experience.

“In the current job market, having theoretical knowledge alone is not enough. Employers are looking for candidates with practical experience, which many graduates don’t have immediately after university,” she said.

Through the support of RNE, Ilham was able to join the SEAP programme, which provides structured practical training aimed at bridging the gap between academic knowledge and professional skills. The programme not only enhances technical competencies but also prepares participants for employment opportunities by equipping them with real-world experience.

Ilham emphasized that SEAP is a game-changer for young women in Zanzibar, especially in fields traditionally dominated by men like engineering. She commended both the Engineers Registration Board (ERB) and RNE for prioritizing female empowerment through practical, skill-based programmes.

According to her, the training has already opened new doors and increased her confidence in navigating the professional engineering world.

The SEAP programme continues to play a vital role in promoting gender inclusion and employability among engineering graduates in Tanzania, with growing support and recognition from both local and international stakeholders.

SEAP TRAINEES VOX POPS

Name: **Ms LatifaTwaha**

Profession/collage: **Engineering of irrigation and water resources**

University: **Sokoine University of Agriculture (SUA),**

Undertaking her SEAP trainee at Lake Victoria Basin water board (LVBWB)

"I learned project designing, construction, and office management now I know how to design water storage tanks, water distribution systems, and assess pump capacity, also we are building tank platforms, pump houses, and draw-off points (DPs) I also gained skills in writing technical reports and participating in office meetings.

I call upon to RNE to continue supporting girls in engineering so they can gain valuable experience and knowledge through this SEAP program".





Name: **Ms Zabia Masoud Ali,**
 Profession: **CIVIL Engineering**
 University/collage: **Mbeya University of science and technology (MUST)**

Undertaking her SEAP trainee at MWERA hawai PROJECT ZANZIBAR

Since I completed my studies in 2020 has nothing to do, Afterwards, in 2024 I was fortunate to receive RNE funding for practical training to gain experience. Unassisted female engineering students disappear after graduating; they get married and start caring for families, while others pursue different things unrelated to their professions."



Name: **Ms Nabila Said**
 Professional: **Electrical Biomedical engineering**
 University/college: **Arusha Technical College**

Undertaking her SEAP trainee at chief government chemist laboratory agency Zanzibar

Nabila Said, a graduate of Arusha Technical College I studied electrical engineering, says that after registering with the Engineers Registration Board (ERB), I received support from the Royal Norwegian Embassy (RNE). Through this, I benefited from allowances, personal protective equipment (PPEs), and health insurance.

"The insurance has helped me with health matters. I can use this insurance in Zanzibar, throughout Tanzania, and at any public or private hospital. Also, the PPEs assist me with safety issues, and the allowance helps with my subsistence I real thank the Norwegian Embassy for their funding because many female engineers haven't been registering, but due to their support, they've now been doing so"



REGISTRAR ARCHITECTS, ENGINEERS AND QUANTITY SURVEYORS REGISTRATION BOARD (AEQSRB) COMMENDS PROGRESS OF SEAP PROGRAMME IN ZANZIBAR

The Registrar of the Architects, Engineers, And Quantity Surveyors Registration Board (AEQSRB) Zanzibar, **Eng. Mansoor Rashid**, has commended the ongoing success of the graduate Engineers Apprenticeship Programme (SEAP) in Zanzibar.

Speaking during a meeting with officials from the Engineers Registration Board (ERB) who visited Zanzibar to monitor the progress of SEAP program, Eng. Rashid explained that the programme was officially launched last year through a collaborative effort between (AEQSRB) and ERB that the first cohort has enrolled 20 female engineering graduates from Zanzibar.

He noted that SEAP under the sponsorship of the Royal Norwegian (RNE) is designed to provide young engineers particularly women with hands-on practical experience in the field, which is vital for enhancing their employability.

"We have seen remarkable progress within a short time our young female engineers are gaining practical skills, and this has been instrumental in preparing them for the job market or even for self-employment,"

he stated.

Eng. Rashid also extended his appreciation to the President of Zanzibar and Chairman of the Revolutionary Council, **H.E. Dr. Hussein Ali Mwinyi**, for his strong commitment to infrastructure development across the islands.

He highlighted several major projects including road construction, flyovers, and modern markets where female SEAP participants are actively involved in supervision and implementation.

He further expressed his gratitude to Engineers Registration Board (ERB) for their close follow-up and continued support for female engineers, and urged for the sustained implementation of SEAP to open more employment and entrepreneurship opportunities for women in the engineering profession.

"We are grateful to ERB and RNE for their commitment to empowering female engineers through the SEAP programme, will certainly expand opportunities for women to be employed and to create their own ventures," he concluded.

The SEAP programme stands as a shining example of inter-institutional collaboration in fostering professional growth and technical empowerment among young engineers in Tanzania particularly in elevating the role of female engineers in national development projects



Courtesy visit in Zanzibar: ERB team with Eng. Mansoor Rashid,(in between) Registrar of AEQSRB, during a follow-up on the SEAP program that kicked off last year with 20 young beneficiaries



INTERVIEW SESSION

The Structured Engineers Apprenticeship Programme (SEAP) has emerged as a vital pathway for many graduate engineers in Tanzania, enabling them to achieve their professional aspirations and reach significant career milestones.

Central to the effective execution of this impactful programme is **Eng. Veronica Fabian Ninalwo**, the Assistant Registrar in the Professional Development Affairs Department at the Engineers Registration Board (ERB). We had the opportunity to speak with Eng. Ninalwo to gain her insights on the role of sponsorship particularly RNE sponsorship—within the SEAP programme.

QUESTIONS

1. What is your role in the SEAP Programme?

The purpose of SEAP is to prepare graduate engineers to become professional engineers, to be able to practice independently within the time stipulated in the Act (3years). As the Assistant Registrar – Professional Development Affairs, my role is to coordinate the programme. Since the industry conducts the training, a successful apprenticeship programme is achieved through the collaborative efforts of the Board,

2. How do you assess the impact of the Royal Norwegian Government's support on the SEAP initiative?

(a) Increased Female Participation: Norwegian support has led to a notable rise in the number of women entering and completing the SEAP programme to become professional engineers in Tanzania.

(b) Financial Support for Female Trainees: The provision of subsistence allowances and additional training for female apprentices has been instrumental in supporting their participation and success of the programme.

(c) Capacity Building: Training for mentors and strengthening the capacity of ERB staff have contributed to the effective implementation and management of the programme.

3. How does the RNE sponsorship impact female participation in national development?

(a) Increased Number of Female Engineers in the country.

(b) Role Modeling & Value Chain Effects: Female SEAP graduates have secured positions in government and private sector firms, with some launching startups and reaching leadership positions, serving as role models.

(c) Promotion of Gender Equality by breaking stereotypes and opening new possibilities for women in traditionally male-dominated careers.

(d) Inspiration for Younger Girls to pursue STEM fields.

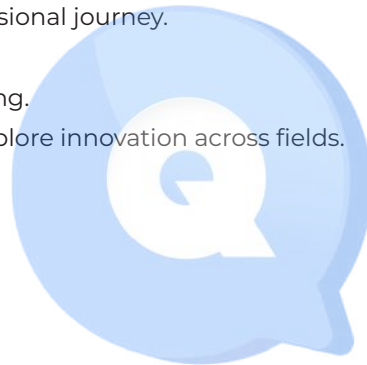
(e) Leadership Development: The leadership programme has helped women acquire leadership roles.

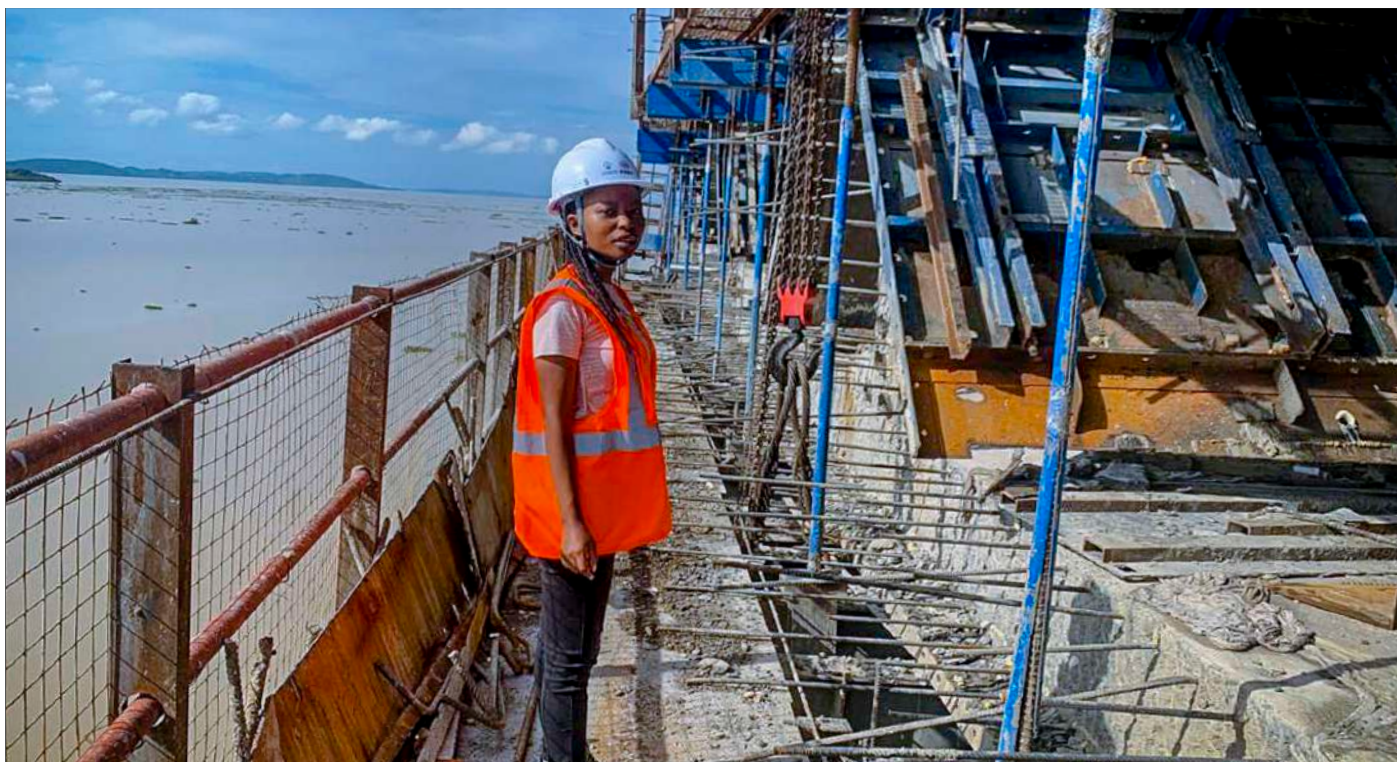
4. What is your call to RNE as the sponsor, and to others who may wish to sponsor?

- (a) Encourage transitioning from short-term grants to a **sustainable funding model** by engaging the government and other partners to integrate SEAP into broader development programmes.
- (b) Continue offering **gender-targeted support**, such as stipends or incentives for female apprentices, and expand recruitment efforts to include more women.

5. What advice would you give to a SEAP trainee?

- (a) To obey the code of conduct and ethics for engineers.
- (b) Work ethically and professionally throughout your career.
- (c) Collaborate closely with your mentor and learn actively.
- (d) Set goals and manage your time well.
- (e) Be proactive and take initiative in your professional journey.
- (f) Stay engaged in your learning process.
- (g) Balance work, learning, and personal wellbeing.
- (h) Keep learning new skills, stay curious, and explore innovation across fields.





How Jennifer Massawe Gains Practical Skills at JPMagufuli Bridge Project

Through the Structured engineering Apprenticeship Program (SEAP) coordinated by the Engineers Registration Board (ERB), Jennifer Massawe, a female Graduate Engineer, successfully spent two years of intensive practical training at the JPMagufuli Bridge construction project.

Jennifer emphasized the significance of this training in enhancing her skills, knowledge and experience "Here, I've had practical training for approximately two years under the supervision of Eng. Abdul Karim Majuto, whose experience in the supervision of major bridge construction is vast," Jennifer stated.

She highlighted several key areas of learning during her tenure, including Asphalt Production that she gained comprehensive knowledge of the entire asphalt production process, from laboratory design of the correct mix to the application of the necessary heat for quality asphalt.

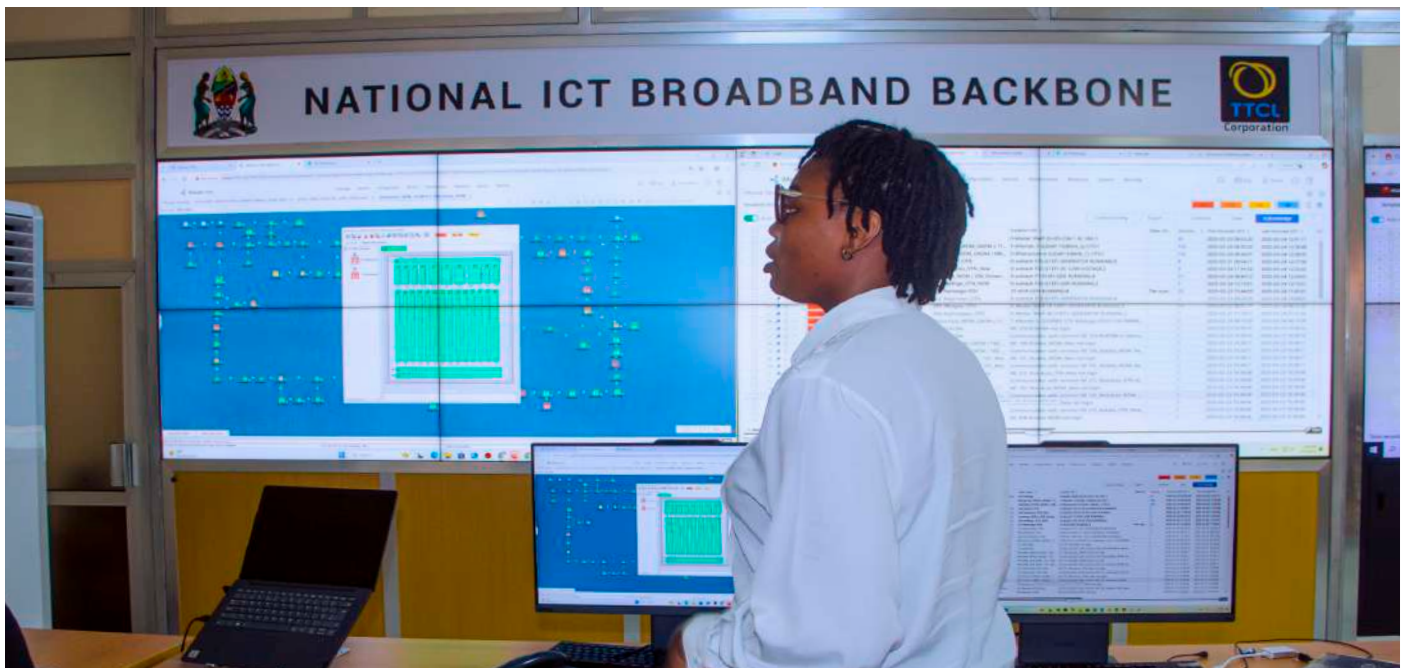
Among the other skills that Jennifer gained while she was undertaking her SEAP training in JPMagufuli Bridge project is the use of the Modern Asphalt Paving Techniques that she acquired hands-on expertise in operating modern asphalt pavers, ensuring efficient and high-quality road surfacing she also learned how to apply specialized thermoplastic paint, which is laid using high temperatures reaching up to 180 degrees Celsius

She also said, "One of the vital lessons I learned was the installation of glass beads on the asphalt that reflect light at night, significantly improving visibility for road users in the dark and enhancing overall road safety"

She also understood Expansion joint from that project Jennifer also learned the importance of expansion joints in bridge construction on its vital role to prevent cracks in the concrete, as concrete, much like metal, contracts and expands with temperature changes.

Jennifer Masawe's practical training underscores the success of the SEAP initiative in empowering Tanzanian youth in the engineering sector. She is proudly among the 16 dedicated SEAP trainees who have gained invaluable skills at the JP Magufuli Bridge project, further cementing their readiness to contribute to the nation's infrastructure development.





FEMALE ENGINEERS CELEBRATE CAREER GROWTH THROUGH SEAP TRAINING PROGRAM

Female graduate engineering graduates from Mainland Tanzania and Zanzibar share their successful stories on how they gained have through the Structured Engineers Apprenticeship Programme (SEAP), training program.

SEAP is a three year full-time training programme giving graduate engineers the required practical knowledge and experience to become registered as professional engineers whereby, SEAP trainees are placed at relevant engineering institutions where they gain practical working skills and experience.

Speaking at different times, they said that this program has enabled them to gain self confidence, express themselves better, and grow further in their field.

Ms Prisca Lugata, a telecommunications and electronics engineering graduate from the Dar es Salaam Institute of Technology (DIT), completed her studies in 2019.

She joined TTCL in 2022 and later enrolled in the SEAP program under the sponsorship of Royal Norwegian Embassy (RNE), which gave her the chance to gain practical experience in various company departments.

“Through the program, I have worked in the maintenance department first. Thanks to ERB and the Norwegian sponsorship, I am receiving the allowances and support that has fully kept me engage in practical training, develop my confidence, and sharpen my



Explaining how the program has helped her, she says it has broadened her understanding of how communications systems work, especially fiber installation, and network related issues.

She said, “I have also learned how to handle customer complaints, perform installations, solve technical issues, and collaborate effectively within teams.”

She is now focusing on management training during the remaining period of her SEAP employment.

Prisca urged society not to discourage women from pursuing technical fields, noting that although such perceptions often hold women back, the support she received from her family and teachers enabled her to achieve her goals. She now encourages other women to believe in their potential.

Another graduate MsZabiaMasoud Ally, a civil engineering graduate from Mbeya University of Science and Technology (MUST), completed her studies in 2020 and later joined the SEAP program through the Royal Norwegian Embassy's (RNE) said that she has gained practical experience.

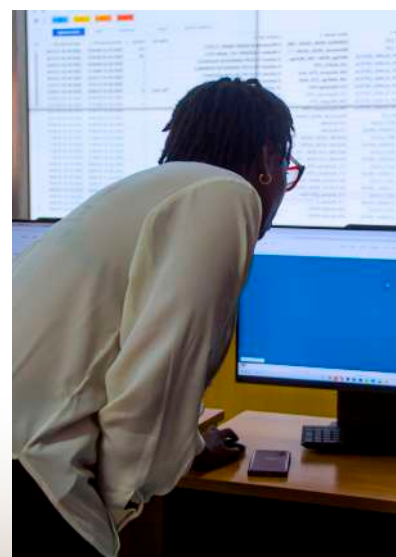


Before I joined this program, I did not know designing, project management but now I have been equipped with the aforementioned skills. This program has helped me a lot, it has opened my eyes and given me the courage and strength to work hard," she said.

Ms Ally further urged women not to remain idle at home after graduating, waiting for marriage, but to seek opportunities and gain experience practically and boost their career growth.

I joined the program in April last year, and since then I have benefited greatly. Zabia noted that research indicate many female engineering graduates tend to abandon the profession and get married or shy away for various reasons, but SEAP reignited her passion.

One she finish her SEAP program, she aspires to become a renowned engineer in the next five years and plans to start a women led engineering company to train and employ fresh graduates.





Anna Masangi

A SEAP Trainee at TANROADS
Dar es Salaam

EMPOWERING FEMALE ENGINEERS A DREAM IN MOTION

The strategy to uplift and nurture the professional development of female engineers is finally bearing fruit in Tanzania, thanks to a powerful initiative financed by the Royal Norwegian Embassy (RNE).

This comes after the government of Norway, through the RNE in Tanzania, has renewed its commitment to continue supporting the program of female graduate engineers under the Engineers Registration Board's (ERB) Structured Engineers Apprenticeship Programme (SEAP) extending the sponsorship for another three years from 2024 to 2027.

In the third phase SEAP under RNE Sponsorship guiding 100 female graduates from both Mainland Tanzania and Zanzibar into becoming licensed Professional Engineers by 2027. In Tanzania main land 80 female graduates engineers are sponsored while in Zanzibar 20 graduates engineers are sponsored.

A University of Dar es Salaam (UDSM) graduates and SEAP sponsored, Ms Anna Msangi said that the program has opened countless doors for her.

"Through RNE's sponsorship, I have worked on major projects, from bridge construction to innovation management and infrastructure assessments. I'm genuinely grateful for this opportunity," she said.

Ms Anna who is a civil engineer graduate emphasized that the program is a game changer for anyone aspiring to grow in the engineering field. "SEAP keeps us motivated and pushes us to achieve our dream of becoming Professional Engineers. Personally, I've experienced remarkable growth and transformation in my career."

She also had a powerful message for young women who might feel hesitant about entering engineering: "Don't be afraid. Engineering is thrilling and empowering! It is not about gender it is about the impact you bring to the world. Sectors are evolving fast, and we need more passionate women to drive the change."

With her eyes sparkling with ambition, Anna confidently declared that in five years, she sees herself as one of Tanzania's leading engineers. "Engineering is not about memorizing facts—it's about solving real world problems. Thanks to SEAP, I'm no longer just dreaming; I'm building a real career."

Another shining star from UDSM, Thecla Sixbert a civil engineer graduate, now working with the Tanzania Rural and Urban Roads Agency (TARURA), shared a similar story of growth. Thanks to SEAP, she has gained hands-on experience managing road projects, designing infrastructure, and mastering project management skills.

"This program has been transformative. Beyond the practical skills, the sponsors provide us with health insurance, protective gear for fieldwork, and even a monthly stipend to ease our living costs are covered. SEAP and ERB have been instrumental in my journey—and for that, I'm deeply grateful," she said.

Thecla added, "Now, I am determined to keep pushing forward. I have the skills, the knowledge, and the drive to make a real difference. I'm excited about the future."

She urged donors to continue investing in female engineers, pointing out that programs like SEAP are critical for inspiring the next generation of women to break barriers and shape the future of engineering in Tanzania.



ERB'S SEAP PROGRAM: EMPOWERING GRADUATES, CHAMPIONING WOMEN IN ENGINEERING

Engineers Registration Board (ERB) Registrar, Eng. Bernard Kavishe shares why the SEAP project is a game-changing initiative crafted to empower young graduates with hands-on skills and a winning mindset for the modern workplace.

ERB's Registrar, Eng. Kavishe made the remarks recently that the program has its own curriculum, and participants are expected to undergo a three-year learning process, receiving on-the-job training through this apprenticeship model.

"This program was initiated by the ERB, but it also involves other stakeholders and organisations such as Tanzania National Road Agency (TANROADS), Tanzania Rural and Urban Roads Agency (TARURA), or any other sites where construction activities are ongoing. Other key stakeholders are the mentors who experienced professionals that the SEAP trainee assigned to them for guidance, supervision and lead them along the expected path of the engineering profession," he said.

Eng. Kavishe also highlighted the role of sponsors, noting that young engineers need financial support for their daily sustenance, travel, meals, and health insurance. These funds come from the Royal Norwegian Embassy (RNE), the government of Tanzania and sometimes from the students' families.

According to him, trainees themselves are vital stakeholders therefore, he emphasized students to be committed, disciplined, and willing to learn engineering regulations and workplace policies.

"This program has been a great success. It has been running for 23 years and has supported more than 14,000 female engineers who are now contributing to the nation's economy. Engineering is one of the sectors where gender parity is still lacking. For every one female engineer, there are seven male students' figures that are unacceptable," he said.

Why SEAP is important

Eng. Kavishe said principally when engineers graduate they have a strong academic base but they are lacking experience and altitude.

Therefore, to transition a fresh graduate to a professional engineer to an engineer with a professional opinion you need to train them at the place of work, make them work under the supervision of professional engineering.

So, we started this program as SEAP, where the key word is structured meaning there is a syllabus of things that they must be exposed to before they graduate. Another key word is apprenticeship meaning the training is happening at the place of work, so it is a three years program where ERB take graduates, put them in an engineering setting at a place where engineering is happening.

"We provide them with a mentor, a person who will read their reports, guide them, we give them allowances, health insurance and, also we monitor them, we go around by visiting them," he said.

The monitoring is twofold firstly, they have to maintain a log book for the period of three years, then they have to write a quarterly report, a report of the things they have been exposed to and quarterly report is ready by the mentor and it is also ready ERB, upload it online and external evaluator will also read it.

After three years, they become competent or good because they have knowledge, experience and the biggest thing they have is positive attitude and acceptable attitude so, this is a very successful programme.



Why royal Norwegian supports women

Eng Kavishe explained that not only women face challenges entering the engineering profession but also struggle to grow within it. In response, a project was developed to support and empower women in the field, aiming to promote gender equality.

"This program has had a significant impact, increasing the number of skilled female engineers by over 1,000 percent, when the program started, there were only 96 female engineers before RNE support the SEAP program, now there are over 1,300 after RNE started to sponsor female graduate engineers. This is a major achievement," he said.

According to ERB Registrar SEAP project under the RNE Sponsorship is now in its third phase. So far, with 100 currently undergoing training 80 from Tanzania Mainland and 20 from Zanzibar.

He added that the project has inspired other Sponsors, For instance, the World Bank now offers special funding support for female engineers. Many programs have replicated Norway's successful support model due to its evident results.

During this third phase, efforts are also being made to promote science and mathematics subjects in primary academic levels, as these subjects are foundational for future engineers.

"Girls are being left behind in secondary schools, so we are going even further back to bridge that gap. Through these efforts, we expect to achieve our 50/50 gender parity goal within five years," he says.

Despite various efforts, Eng. Kavishe admitted that there is still much work to be done to make SEAP financially sustainable. Not everyone who needs support can access it, so the project must secure long-term funding to cover allowances, insurance, and operational costs. Academic levels, as these subjects are foundational for future engineers.

He also notes the need for more placement opportunities for trainees. Local government authorities could provide ideal environments, as many projects lack adequate supervision

something young engineers could help address.

"Gender equality in science education must begin in primary school. The 50/50 balance starts to slip in secondary school. But if we stay committed, we can achieve 50/50 in universities and eventually in the workplace," he says.

Eng. Kavishe further applauded the government through President Samia Suluhu Hassan, the RNE, World Bank, the U.S. Government, and other partners for supporting youth, especially girls in engineering training. Academic levels, as these subjects are foundational for future engineers.



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