Review of support to female engineers through the Structured Engineers Apprenticeship Program (SEAP) implemented by Engineers Registration Board (ERB)

HANNE LOTTE MOEN, SILJE S. VEVATNE, ESTHER MASUNZU

Norad Collected Reviews 08/2015

The report is presented in a series, compiled by Norad to disseminate and share analyses of development cooperation. The views and interpretations are those of the authors and do not necessarily represent those of the Norwegian Agency for Development Cooperation.

www.norad.no
ISBN 978-82-7548-768-9
ISSN 1894-518X

Acknowledgements

This report could not have been written without extensive support from a wide range of people, whom we would like to acknowledge. We want to extend our special thanks to the staff of ERB, who welcomed us warmly and spent long hours discussing with us. We appreciate their hospitality, all the time they dedicated to us and all the information they provided us with. Moreover, we would like to thank all the female engineers whom we spoke to during our stay in Tanzania. Most of them are current or former trainees of the SEAP programme, and some of them travelled far to talk to us. We highly appreciate their frank contributions.

Furthermore, we want to thank the Norwegian Embassy, and particularly Monica Blaalid for her fantastic helpfulness. Her prompt and adequate answers to all our queries was a tremendous help for us during the initial phases of the review.

We also want to thank all the other people who took the time to speak with us. We are grateful that so many people were willing to make space in their crowded timetables for this review.

Oslo/Dar es Salaam

14.08.2015

Hanne Lotte Moen (team leader), Silje S. Vevatne (team member), and Esther Masunzu (team member)

Abbreviations

ERB	Engineers Registration Board
IET	Institution of Engineers Tanzania
NGO	Non Governmental organisation
PDA	Professional Development Affairs
PDU	Professional Development Units
PE	Professional Engineer
RNE	Royal Norwegian Embassy
SEAP	Structured Engineers Apprenticeship Programme
SWOT	Analysis of strengths, weaknesses, opportunities and threats
TCU	Tanzania Commission of Universities
VETA	Vocational Education Training Authority
WAED	Women Annual Engineers Day

EXCECUTIVE SUMMARY

Introduction
The Royal Norwegian Embassy (RNE) has requested Norad to undertake a review of the support to female engineers through the Structured Engineers Apprenticeship Program (SEAP) in order to assess the progress and give recommendations on the best ways forward to meet the project objectives. The purpose of the review is to contribute to the quality and delivery of the programme, and the findings from the review will be used to guide the implementation of the remaining part of the project.

The project
RNE has been providing financial support to the Engineers Registration Board (ERB) since 2010 to strengthen the capacity of female engineers and support their full registration as professional engineers. The support to the female engineers is implemented through the Structured Engineers Apprenticeship Program (SEAP). The project is scheduled to end in 2015, but a no-cost extension until ultimo 2016 has been approved by the RNE.

In order to achieve a higher number of registered female engineers, the project set out to give the female SEAP trainees subsistence allowance and additional trainings, as well as provide training for mentors and build the capacity of the ERB staff managing the project. Furthermore, the project set out to strengthen professional associations for female engineers in Tanzania.

Findings
The support to the female engineers continues to be highly valid and relevant to national needs and priorities as well as to international and Norwegian policies. The female graduate engineers are still few, and lessons learned from the programme show that it is difficult for female engineers to finalize three years as trainees without economic support. Experience from the implementation of the project proves that most of the trainees gain adequate skills and successfully manage to go through the programme, become registered, and get relevant jobs as professional engineers. Despite the fact that the project is subject to delays, it is likely to achieve the set goals if only given some extra time to fulfil the task.

At the end of the original project period (2015) 209 female trainees are likely to have become registered engineers, the target being 291. This means that the project has an achievement rate of 72 percent, which is satisfactory, although it also shows that the project suffer from some delays.

The project has clearly contributed to increase the number of registered female engineers in Tanzania. In 2009 there were 96 registered female engineers in the country. Today, only five years later, there are 220 registered female engineers. 75 of the 124 female engineers who have received registration during the last five years have been part of the project, and many more are ready to get registered in the near future.

The project has also contributed to increase the membership of the Institution of Engineers Tanzania (IET) Women's Chapter through sensitisation workshops, support of the Women's Chapter's annual conference etc.

Another important feature of the project is developing capacity among the mentors. Although there is a slight delay in conducting all the planned training seminars, 16 out of 20 mentor trainings have been conducted. Mainstreaming a gender perspective into the mentors' trainings would enhance the quality of the trainings and equip the mentors with important awareness, knowledge and skills. Gender training for the ERB/SEAP staff could also help executing the project in a more gender sensitive manner, which could lead to higher quality and even reduced drop-out rates. A more strategic and holistic approach to a gender friendly SEAP may in itself attract more female engineers to the SEAP programme and contribute to reduce the drop-out rates.

The ERB secretariat implementing the project has a clear, exclusive legal mandate to regulate the conduct of engineers and to provide for their registration. It has dedicated and competent staff, as well as guidelines and systems in place. There are, however, not sufficient financial and human resources in ERB to ensure high quality implementation of a programme of this size. The lack of resources affects the ability of staff to effectively monitor the individual trainees, mentors and host institutions. There is a risk that the lack of capacity to follow-up of on female trainees in the districts may be a reason for drop-outs and delays.

ERB statistics show that the female SEAP trainees without the extra funding have a significantly higher drop-out rate than those with the extra funding. Trainees who receive support from the RNE is found to have a completion rate of 86 percent compared to 20 percent for the trainees who are self-sustained. Although most trainees interviewed hold that the funding is inadequate, these figures do indicate that the amount of subsistence allowance given through the Norwegian funding is just high enough to retain people in the programme. This is an encouraging outcome, and if the funding could be sustained, it could raise the number of female engineers in Tanzania considerably.

The project is, however, not financially sustainable and continued external funding is needed. Ideally, the government of Tanzania should take on this responsibility, but in the meantime other sources of funding should be sought.

Recommendations

1. It is recommended that a two-year no-cost extension is granted as requested by ERB.

2. The Ministry of Works should eventually take over the responsibility for ensuring the participation of female trainees in the SEAP. In the meantime ERB should actively work to secure funding from other sources.

3. The general capacity of the ERB should be strengthened to enhance the follow up of the trainees, mentors and host institutions.

4. The ERB training department staff working directly with the project should be equipped with improved gender knowledge, awareness and skills.

5. ERB should ensure that all active mentors have adequate knowledge about the mentoring role and that they attend the capacity building workshops.

6. Gender knowledge and awareness of issues such as sexual harassment, discrimination and being a female in a male dominated workplace should be a topic covered in all mentor's capacity building workshops.

7. Gender should be mainstreamed into all parts of the SEAP programme, including guidelines and trainings. A code of conduct for trainees, mentors and host institutions and a reporting mechanism for reporting discrimination and harassment should be developed and clearly communicated to all parties involved in the SEAP.

Contents

1. INTRODUCTION

1.1. Background for the review

The Royal Norwegian Embassy (RNE) is providing financial support to the Engineers Registration Board (ERB) to strengthen the capacity of female engineers and support their full registration as professional engineers. The support to the female engineers is implemented through the Structured Engineers Apprenticeship Program (SEAP)[1]. The original proposal was developed based on the recommendations from a mapping survey on Women and Energy, which was commissioned by the RNE in March 2009.

The project[2] was originally planned to be implemented during five years from 2010 until 2015 with a total of NOK 13.9 million. At the time of the field work for this report a no-cost extension was discussed among the involved parties, and the project period may therefore be extended[3]. By June 2015 NOK 11,409 million has been disbursed and the last instalment is planned to be transferred before the end of 2015.

A mid-term review envisaged to be conducted two or three years into the project cycle has been delayed. This is therefore the first review conducted during the lifespan of the project.

1.2. Purpose of the review

The RNE has requested Norad to undertake a review of the project in order to assess the progress and give recommendations on the best ways to forward to meet the project objectives. The purpose of review is to contribute to the quality and delivery of the programme, and the findings from the review will be used to guide the implementation of the remaining part of the project.

According to the agreed Terms of Reference the tasks of the consultants shall include:

1. To determine the extent to which the goal and specific objectives of the project, as defined in the logical framework, have been achieved by the date of the review, and assess the likelihood of achieving them upon project completion
2. To identify the strengths and weaknesses of the implementing partner, and identify potential ways to improve the project delivery
3. To assess the continued relevance, sustainability, efficiency, and effectiveness of the project
4. To provide recommendations for improving the execution in the remaining period of the project
5. To provide recommendations on an exit strategy as requested in the Decision Document of April 2010

[1] In this report SEAP is referred to as a programme, whereas the Norwegian funding to female engineers within SEAP is referred to as "the project"
[2] Ibid
[3] At the time of the writing of the final report an extension until the end of 2016 has been approved (Addendum signed on June 17th 2015)

1.3. Methodology

The review methodology includes a combination of the following data collection methods:

1. Review of relevant documents (See Annex 2 for list of documents reviewed)
2. Individual interviews with relevant stakeholders including the RNE, the ERB secretariat and board, the Institution of Engineers Tanzania (IET), managers at host institutions where the female engineers do their practical work, the Ministry of Works, the University of Dar es Salaam, mentors/supervisors, as well as a selection of current and former trainees (See annex 1 for full list).
3. Focus group discussions with ERB secretariat staff and with female engineers who are former and present trainees. Participatory methods used in focus group discussions generated lively discussions and provided the review with useful information.
4. Brief participatory SWOT analysis with ERB secretariat staff, assessing strengths and weaknesses of the ERB.
5. Site visits to meet trainees and observe host institutions.

The field work was carried out in Tanzania from May 31st to June 5th 2015.

All together 31 people were met during the review. 20 of them are women, 11 are men. The skewed gender balance is due to the fact that many of the current and former female trainees were interviewed. Apart from the current and former trainees most of the people involved in the project are men.

1.3.1. Limitations

The number of days set aside for field work in Tanzania was limited, meaning that the team had to stay in and around Dar es Salaam. Having more time and thus being able to visit other parts of the country could have contributed to a deeper understanding of issues related to the implementation of the project. However, some of the female engineers interviewed are trainees in other areas of the country, and the team is confident that most issues of major importance have been captured.

The selection of the female trainees met by the review team was assisted by ERB. This may have affected some of the answers and the team may have met more successful trainees than the average. However, when talking to the female engineers the team emphasized the importance of anonymity and frankness, and most of the informants did not seem reluctant to address negative aspects of the project.

The team made an effort to talk to as many people as possible with different relations to the project. However, as few stakeholders are involved in the project, there are limited sources of information. Therefore, some of the information received from the ERB has been difficult to verify through triangulation.

2. BACKGROUND, PROJECT OBJECTIVE AND THEORY OF CHANGE

2.1. The Engineers Registration Board (ERB)

The engineering profession in Tanzania is regulated by the Engineers Registration Board (ERB), which is established by the Engineers Registration act No.15 of 1997[4]. Engineers are required to obtain registration with ERB before they are legally permitted to offer engineering services and work independently. The ERB is also charged with ensuring professional development of engineers for sustainable growth of the profession in Tanzania. It is established under the Ministry of Works as a board with a secretariat.

2.2. The Structured Engineering Apprenticeship Programme (SEAP)

Over the years the ERB has become concerned by the slow rate of registration of engineers. In order to accelerate the pace at which graduate engineers gain experience and fulfil the requirements for registration, the ERB instituted the Structured Engineering Apprenticeship Programme (SEAP) in 2003. The SEAP is a three-year full time trainee programme giving graduate engineers the required practical knowledge and experience to become registered as professional engineers.

The SEAP trainees are places at relevant engineering institutions where they gain practical working skills. They have to prepare a weekly log and a quarterly report to their mentors. When accepted by the mentor, the trainee submits the quarterly report to ERB. After three years of practice the trainee has to submit a final report compiling information about the content of the work experience acquired. This report has to be reviewed by at least three external senior registered engineers and approved by the ERB for the trainee to become registered as a professional engineer.

The ERB has a list of identified mentors in the various engineering disciplines who supervise the trainees and mentor them through the programme. The mentors are not compensated in monetary terms, but are awarded Professional Development Unit (PDU) points, which contribute to the qualification for renewal of their practicing license required every three years.

The Ministry of Works is providing some funds for allowances to help cover some of the trainee's costs (transport, lunch at work, report printing etc.). These funds are small and only a few of the SEAP trainees receive this support.

From 2003 to 2009 only 16 percent of the SEAP trainees were female. As of June 2015 there are 989 active trainees in the SEAP. 216 of these are female, which accounts for 22 percent.

[4] This Act followed the repletion of the Engineers (Registration) Act No. 49 of 1968 which did not adequately address the issues of engineering professional excellence in the country. The Act was subsequently amended by the Engineers Registration (Amendment) Act no.24 of 2007.

2.3. The project of supporting female trainees

In 2009 the Royal Norwegian Embassy (RNE) commissioned a short survey to look at the status of women in the energy sector[5]. The survey found that there are very few women in the sector and much fewer in management or decision making positions. Based on the survey report the RNE engaged in a dialogue with the ERB, who later submitted a request for supporting female engineers through the SEAP programme by giving them an allowance to enable them meet the cost of subsistence.

It was envisaged that adequate subsistence allowance would ensure more females to successfully complete the trainee programme and become registered professional engineers. The presence of a higher number of registered female engineers would contribute to gradually reduce the current male dominance in the engineering field. More female engineers would also attract young girls to study science subjects, which would enable them to study engineering.

In order to achieve a higher number of registered female engineers, the project set out to give the female trainees subsistence allowance and additional trainings, as well as provide training for mentors and build the capacity of the ERB staff managing the project.

Furthermore, the project set out to strengthen professional associations for female engineers in Tanzania. A strong association of female engineers can create support networks and a forum where the female engineers can encourage and learn from each other. It can also assist in advocacy by fighting in unity to eliminate or minimize harassment and discrimination.

The overall goal of the support to female engineers through the SEAP programme is: *'To contribute to sustainable socio-economic development in Tanzania by promoting gender balance in professional training and empowering women engineers to confidently hold and manage professional responsibilities in government, industry and business.*

The specific objectives of the project are:

1. Support professional training of graduate women engineers in Tanzania through the Structured Engineers Apprenticeship Programme of the ERB (86.5 percent of budget).
2. Strengthen professional associations and advocacy forums of women engineers in Tanzania (5.5 percent of budget).
3. Develop national capacity to effectively supervise and mentor SEAP trainees through comprehensive mentorship training of SEAP supervisors (6 percent of budget).
4. Strengthen capacity of ERB to promote initial and continuing professional development of women engineers through technical assistance to the Board's directorate of Professional Development Affairs (2 percent of budget).

5 Women in energy in Tanzania, mapping survey report by Esther Masunzu

ERB is implementing the programme. Their responsibilities include:

- Recruiting graduate female engineers to the trainee programme through advertisements and visits to leaning institutions
- Identifying training placements
- identifying and training mentors for the trainees
- arranging trainings and field visits for the trainees
- paying allowances and providing trainees with safety gear.

The main planned outcome of the project is 291[6] graduate female engineers enrolled in the Structured Engineers Apprenticeship Programme (SEAP), trained and registered as professional engineers within a period of 5 years beginning 2010.

[6] Originally 200, but increased to 291 in Addendum no 1 to the contract

3. FINDINGS

3.1. Relevance

"Most people don't trust that a woman can have a final say, especially at site".

Informant

The rationale behind supporting the female engineers as envisaged in the project document continues to be highly valid and relevant. The female graduate engineers are still few, and lessons learned from the programme show that it is difficult for female engineers to finalize three years as trainees without economic support[7]. Experience from the five years of implementation of the project proves that most of the trainees gain adequate skills and successfully manage to go through the programme, become registered, and get relevant jobs as professional engineers. According to ERB most of the trainees do actually become employed before completing the trainee period.

Bridging the gender gap and empowering female engineers to take up professional roles is also still relevant to and consistent with national policies such as the policy on women in development in Tanzania, the national gender policy and strategy, the national higher education policy and the Tanzania Development Vision 2025.

The project is still highly relevant to Norwegian policies. According to the Norwegian Action Plan for Women's rights and Gender Equality in Foreign and Development Policy, enhancing women's economic empowerment and rights is a key priority. The project is also in line with the recently launched white paper, Working together: Private sector development in Norwegian development cooperation[8], where "Supporting targeted efforts to reduce political, economic, legal and other structural obstacles to women's participation in the private sector" is a key action point. Moreover, the support to gender equality in the employment sector is in line with recent Norwegian white papers on Human Rights and Education.

Globally the promotion of gender equality including women's economic rights and their rights to higher education is high on the agenda. The proposed Sustainable Development Goals include a specific goal on gender equality, partly aiming to "Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life", and "Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws"[9]. Gender equality is also highlighted in goal 4 on education and in goal 8 on sustainable economic growth and employment.

An issue that has come up during the review, which is related to the relevance of the project, is the fact that the Norwegian support to this project was initially meant to improve the gender balance in the energy sector, which is of high priority for the Norwegian Government. The way the project was set up, however, made it a much

[7] See section on delays and drop-outs in this report.
[8] Meld. St. 35 (2014–2015)
[9] Open Working Group Proposal for SDGs.

broader endeavour and included women in the engineering field in general. This means that the rationale for the Norwegian support did change at some point between the inception of the idea of this project and the start of the actual project. As outlined above, the project is still highly relevant to Norwegian policies, but if we revisit the original rationale of improving the gender balance in the energy sector specifically, one could argue that other measures particularly geared towards this sector may be more relevant.

Zuhura Said, a SEAP trainee at Temesa, works with the installation of ACs.

3.2. Effectiveness: Assessment of progress

"The Norwegian funding has brought in a new spirit. Even the numbers of applicants have increased, and more people see the importance of registering".

ERB staff

The overall goal of the project is "'To contribute to sustainable socio-economic development in Tanzania by promoting gender balance in professional training and empowering women engineers to confidently hold and manage professional responsibilities in government, industry and business".

In due time the project is likely to create such indirect long-term impacts. The increased number of registered female engineers will eventually contribute to improve the gender balance of the engineering field, creating a more diverse workforce and leadership,

which is likely to contribute to improved socio-economic development[10]. The project is also likely to contribute to changing stereotypical views on women working in male dominated sectors. The female trainees will become mentors for younger engineers and some of them will enter into leadership positions. Their presence in the field will create role models for young girls, who may be inspired and decide to pursue a career in engineering. Moreover, it may contribute to put issues of discrimination and sexual harassment on the agenda, and potentially improve the situation for females working in male dominated sectors.

At this stage, however, it is too soon to assess these long-term impacts of the project. Many of the female engineers who have received the Norwegian support have not yet finished the programme, and many of those who have finished their three years as trainees have not yet become registered engineers. The longer-term effects and the project's contribution to the overall goal is therefore not at the centre of this report. As agreed with the RNE, the emphasis of this report is rather on assessing the specific objectives of the project. In the following sections we therefore concentrate on assessing the current status of the project against the expected outcomes as stipulated in the results framework.

SEAP trainee Angela Genes supervising workers at construction site in Dar es Salaam.

[10] World Development Report 2013 (World Bank) and progress of the World's Women 2015-16 (UN Women)

3.2.1. Specific objective 1:

Support professional training of graduate women engineers in Tanzania through the Structured Engineers Apprenticeship Programme of the ERB.

The main planned outcome of the project is "291 graduate female engineers enrolled in the Structured Engineers Apprenticeship Programme (SEAP), trained and registered as professional engineers within a period of 5 years beginning 2010"[11]. This is in line with specific objective no. 1 and the corresponding expected outcome no. 1 as listed in the results framework. It is by far the most important objective of the project with 86.5 percent of the budget allocations. The funding has been used for subsistence allowances and training events for female engineers during their three years as SEAP trainees.

Status on enrolment and registration of female trainees

Initially ERB planned to recruit 80 trainees in 2010, 60 in 2011 and another 60 in 2012. This means that a total of 200 female engineers were to get registered in the course of five years. This scheme did not, however, take drop-outs into account, and out of the class starting in 2010 only 62 completed, while 18 trainees were removed from the programme as they failed to submit reports over a period of six months. The drop-outs were replaced with more dedicated students in 2012. Out of those who started as trainees in 2011, 22 were removed and replaced the following year. Moreover, in 2011 an addendum to the original contract was signed with the purpose of giving support to an additional 91 trainees who were already in the programme but without financial support. Subsequently, the target of the project became 291 trainees whereas a total of 339 trainees have received Norwegian support at some point.

Partly because of the drop-outs and subsequent delays as well as currency fluctuations, the project has more funding left than anticipated, and therefore the 58 last female trainees were enrolled in the programme as late as in January 2015.

Enrollment					
		Original plan	Additions	Replacements	Total enrolled
1st intake	July 2010	80			80
2nd intake	July 2011	60	33	8	101
3rd intake	July 2012	60		18	78
	July 2013			22	22
Additional intake	jan.15		58		58
		200	91	48	339

[11] Addendum No 1 to the contract.

At the time of the field work for this report 138 female engineers have finished the three year trainee programme. 75 of these have been registered as professional engineers, whereas 63 have submitted their final reports and are currently waiting for the ERB's approval to become registered. Another 48 female engineers have completed the programme, but have not yet submitted their final report. ERB is following up on individuals to ensure submission of final reports. According to ERB and other sources consulted by the team it is highly likely that all or nearly all of these women will become registered engineers in the near future.

The figures outlined above show that out of the target of 291 female engineers 186 are likely to become registered engineers within the original time span of the project. The achievement rate is then 64 percent and indicates some delays in achieving the stated targets.

In addition, 23 female engineers are scheduled to finish their trainee period by the end of June 2015. These women are also likely to submit their final report and become registered engineers within the end of 2015. If these women are included, the achievement rate compared to the target is 72 percent, which can be considered satisfactory although it shows that the project suffer from some delays.

The status of the female engineers registered in the project can be summarized as follows:

Status:	No of female engineers:
Finalized programme and registered	75
Finalized programme, submitted report, currently waiting	63
Finalized programme, not submitted report	48
Will finalize trainee programme June 2015	23
Total	**209**
Target	291
Remaining	82

The project has helped increase the number of registered female engineers

If we look at the total number of registered female engineers in Tanzania we can see that there has been a tremendous positive development during the last five years. In 2009 there were 96 registered female engineers in the country. Today, only five years later, there are 220 registered female engineers. 75 of the 124 female engineers who have received registration during the last five years have been part of the project. It is therefore possible to conclude that the project has contributed positively to these statistics. We can also see a moderate, but steady increase in the number of female registered engineers compared to male engineers. In 2009 4 percent of the registered engineers were female whereas this figure has now risen to 5.5 percent.

Diana Munubi used to be a SEAP trainee, now she has a regular job at the Tanzanian Airport Authority.

Increase in female engineering students

The second expected outcome of the specific objective no.1 is “More females enrolling for engineering courses at Higher Learning Institutions as they will see many role models registered in the engineering profession”. Related to this outcome ERB has carried out some activities such as informing university students about the project. There has actually been a slight rise in the number of female engineering students during the course of the project. It is, however, likely that this is rather a result of the pre entry programmes for female students offered by some universities rather than being the result of this project. The team does not think that it is realistic to expect this project to contribute directly to increase this figure in the short term. In order to get more women to study engineering one has to start influencing girls in secondary school to choose subjects like maths and science.

3.2.2. Specific objective 2:

Strengthen professional associations and advocacy forums of female engineers in Tanzania

ERB has in collaboration with the Institution of Engineers Tanzania (IET) conducted several sensitisation workshops in each geographical zone, encouraging female engineers to join SEAP and the IET Women’s Chapter. ERB has supported the IET

Women's Chapter's annual conference, including support for female university student attendees. 20 SEAP trainees have been supported to participate in the Annual Engineers Day. Aditionally, some of the funds have been used for awards to the ten best performing female graduate engineers each year.

The expected outcome under this objective is "Increased number and participation of female engineers in the Women's Chapter of IET". An indication of the achievements related to this objective is the fact that membership of the IET Women's Chapter has increased from 48 female members in 2009 to 148 members today. It is probable that the membership would have increased somewhat in any case as there has been an increase in female graduate engineers. However, it is highly likely that most of this increase can be attributed to the project.

Despite the fact that the project has achieved what it set out to achieve under this objective, it may still be worth exploring if these activities are the most appropriate ones if the outcome is to strengthen the association itself and not merely increase the number of members.

3.2.3. Specific objective 3:

Develop national capacity to effectively supervise and mentor SEAP trainees through comprehensive mentorship training of SEAP supervisors.

The implementation of the planned activities under this objective is slightly delayed. So far, ERB has conducted 16 out of 20 planned capacity building workshops for mentors, but with some more time the goal is likely to be achieved. All mentors have been invited to attend a two-day training per year, and the trainings have been conducted in each of the five zones in Tanzania. Some of the workshops were for female mentors only. Altogether 197 mentors have been trained, the goal being 200.

The mentors' workshops aim at helping mentors understand their role, equip them with essential mentoring skills, raise awareness of the SEAP programme, exchange information, experience and knowledge, and ensure uniformity in the mentoring of the trainees[12]. According to the SEAP Mentors Workshop Manual the trainings are mandatory. However, some of the mentors interviewed by the team had never received any training. One of them said that he had found information about the role as a mentor on the ERB web page.

The content of the trainings include mentoring skills and techniques, report writing skills as well as ethical principles and codes of professional conduct. When asked if gender issues were included in these trainings the ERB staff responded that aspects like the necessity for females to work hard to achieve respect are included. However, there does not seem to be any wider gender issues on the agenda at the mentors' workshops. Taking into consideration that the female engineers are a small minority in a very male dominated sector and that both trainees and ERB staff say that harassment and discrimination exist, it would be useful to include a broader gender agenda in the workshops. It is of vital importance that the trainers are equipped with knowledge on

[12] SEAP Mentors Workshop Manual, final draft 2012.

the subject and that they have reflected on the importance of not taking advantage of their role and powers vis a vis the young, female trainees.

"People complain about their mentors, a lot of them do not take the time to go through the reports"

Respondent

The female trainees interviewed generally expressed high satisfaction with their mentors. However, when asked about challenges related to the role of the mentors, respondents talked about mentors who are too busy and uninterested in their mentoring role. The team was also told about a mentor, who expected sexual favours of the trainee, resulting in the trainee dropping out of the programme. The focus group discussions with participatory methods involving writing issues down on post-it notes seemed to reveal more negative aspects than the individual interviews, which may indicate that it may be easier to address problematic aspects in a more anonymous way.

Focus group discussion among current and former trainees.

The following are some of the issues relating to mentors raised in the focus group discussions with trainees:

The good qualities of a mentor:

- Should be the one who reads your report and return it on time
- Should be together with you in your progress
- Should take time to visit you, encourage you, and challenge you
- Should be a registered engineer
- Should have experience in this particular field (of engineering)
- Should show good cooperation, be there to cooperate
- Must be ready to let you know what you are supposed to know.
- Follow you up and instruct you.

Negative aspects of mentors:

- Most of the mentors are too busy with their own job or out of the country, travelling, so then you cannot submit the reports, and you miss the funding.
- When you are at site and working without the mentor present you have to make decisions and you want to discuss first. They need to be more present.
- I am not allowed by my mentor to attend trainings in the company as I am only a trainee
- Should do something about the mentors. They are not motivated.

3.2.4. Specific objective 4:

Strengthen capacity of ERB to promote initial and continuing professional development of women engineers through technical assistance to the Board's directorate of Professional Development Affairs (PDA)

Under this objective, office equipment has been procured as planned, but training for the ERB management has not yet been conducted, except for one staff member having attended a conference in South Africa. It is unclear why the staff trainings have been delayed, and it is still not decided what kind of training is needed. Although implementing a gender project, none of the ERB staff has received any gender training and they may benefit from increasing their understanding of women's rights and gender equality issues and how different gender related factors come into play in a male dominated field such as engineering. More knowledge, awareness and skills in this area could help executing the project in a more gender sensitive manner, which could lead to higher quality and even reduced drop-out rates. Gender trainers could be identified among Women's NGOs or within academia.

3.3. Delays and drop outs

"The major reason for drop-out is lack of funding"

ERB staff

As outlined above the project is subject to delays. The reasons for the delays are varied, but generally there are valid explanations for why they have occurred. Drop-outs account for the main part of the delays, as those who drop out of the programme need to be replaced with other trainees. This process is bound to take some time and thereby cause delays.

In retrospect we see that drop-outs should have been included in the risk assessment prior to the start of the project. It is not realistic to expect 100 percent success rate when enrolling people into a three-year trainee programme, and the design of the programme should have taken this factor into account. Given sufficient time, however, it is highly likely that the achievement rate will increase substantially and end up near the target of 291 female engineers going through the programme and become registered engineers.

The reasons for female engineers dropping out of the programme varies. The women's financial situation is commonly cited as the main reason for dropping out of the SEAP. According to many of the people talked to it is more difficult for women to find cheap accommodation and share housing with others, due to security reasons. Further studies, pregnancies and the quality of the mentoring are also highlighted amongst the most frequent reasons for dropping out. People talked to mentioned the following reasons for dropping out of the programme:

- Need to have a solid income, Some quit to get other jobs
- Difficult for women to find adequate housing. Easier for men to share apartments and live in rough areas. Therefore more expensive for women
- Lacking or delayed feedback from mentors
- Too buzy with work to write reports
- Starting a family and having children
- Sometimes the trainees are not given proper work experience, if they do not get relevant tasks, they do not have anything to report
- If you go to site, people expect a man and do not believe that a woman can do the job as well as a man. Some women do not get to go to site at all
- Some men do not want to have a woman boss
- One trainee had a supervisor who refused to help her unless she had sex with him. She decided to leave.

If we compare the drop-out rates of the female SEAP trainees with Norwegian funding (200 USD) with those with government funding (100 USD) and those with no funding at all, we see a clear and interesting pattern. ERB statistics for the project period show that without any economic assistance most trainees find it hard to successfully complete the programme. Only 20 percent of the self-supported trainees completed the programme over the last five years, whereas 57 percent of the ones receiving the government funding did complete. Trainees who receive support from the RNE is found

to complete the training at the much higher rate of 86 %. These statistics do, however, not take into consideration that by the end of the project more drop-outs might have occurred. Still, even in the very unlikely event that all the remaining trainees had dropped out of the programme, the total drop out rate for those with the Norwegian funding would have been much lower than those with less or no funding.

Although most trainees interviewed hold that the funding is inadequate, these figures do indicate that the amount of subsistence allowance given through the Norwegian funding is just high enough to sustain people in the programme. This is an encouraging outcome, and if the funding could be sustained, it could raise the number of female engineers in Tanzania considerably. The figures are illustrated in the table below:

S/N	CATEGORY	NUMBER ENROLLED	DROPPED OUT	DROP OUT RATE
1	Self Supported Trainees	273	216	79 %
2	Gov't Supported Trainees	312	134	43 %
3	RNE Supported Trainees	339	48	14 %
	AVERAGES	924	398	43 %

Source: ERB

Another reason for delays in the project is the fact that as of mid 2014 and until the end of 2014 "no major activities were implemented due to lack of funds including payment of allowances to trainees"[13]. ERB and the RNE agree that there was a period of time of poor communication from the Embassy's side. After requesting funds for the project in April 2014 the RNE did not answer communications from ERB and funds were not received until December 2014. This situation caused substantial delays and affected the project negatively. Drop-outs were not replaced and other activities were put on hold.

3.4. Sustainability

3.4.1. Sustainability factors

There are a number of elements contributing to the sustainability of the project, and many of the benefits from the project will continue after the Norwegian funding ends. For one thing, it is clear that the project will have life-long benefits for the women who have completed the trainee period and have become registered engineers. The employment opportunities that they face after becoming registered engineers will impact their careers, their families, and it will continue to impact the gender balance in the engineering profession. Similarly, the benefits of training mentors will not be confined to the project period only, but will have spill-over effects to their working life and affect other young engineers as they graduate and get to be supervised by these trained mentors.

Another factor contributing to sustainability is the fact that the project is using the existing structure of the SEAP instead of creating a parallel structure for the female

[13] Minutes of the 3rd annal meeting on 28th November 2014

engineers. SEAP will continue to exist after the Norwegian funding ends, and this opens the possibility of mainstreaming gender into the broader SEAP, something that would contribute to enhanced sustainability of the achievements so far. Although the project may have changed ERB's mindset around female engineers to some extent, the gender aspect has not become an integral part of SEAP.

SEAP could therefore benefit if ERB more clearly communicates to all male and female trainees and mentors why it is important to increase the number of female engineers, what measures are being taken to ensure that more females are enrolled in the programme, and what challenges female engineers may face in the male dominated engineering sector. As an example to illustrate one of these aspects, many of the female trainees talked to during this review were not aware of the possibility of staying in the programme and continue receiving allowances while giving birth. As a result many of the trainees did not inform ERB about pregnancies. ERB, on the other hand, argued that the pregnant trainees would receive three months maternity leave with allowances if they only informed the ERB about the pregnancy. Moreover, although not cited as a major problem, discrimination and sexual harassment was brought up in various conversations during the review process, and the team heard stories about trainees experiencing such violations. ERB staff informed the review team that they raise this topic with the trainees. Still, however, they have not received any complaints or reported cases of discrimination or harassment during the life span of the SEAP.

Including gender issues in the training agenda for both male and female trainees and mentors would potentially contribute to reduced discrimination and harassment. Development of Codes of conduct for trainees and mentors and clearly communicated reporting mechanisms for discrimination and harassment would enhance the security for the female trainees. All in all a more strategic and holistic approach to a gender friendly SEAP may in itself attract more female engineers to the SEAP programme and contribute to reduce the drop-out rates.

3.4.2. Financial sustainability

Although there are several sustainability elements related to the project, supporting female engineers with trainings and subsistence allowances is not financially sustainable. As the set-up is today a continuation of the project will require continued financial inputs either from donors like the Norwegian government or from the government of Tanzania. Although the team has the impression that ERB and the Ministry of Works have real commitment to the importance of increasing the number of female engineers and a sense of ownership to the project, the Government does not seem to have enough available funds to continue the extra funding for the female engineers at this stage. Therefore, to ensure the continuation of the funding to the female engineers in the SEAP, external funding will be needed at least for some years to come. This project has given ERB experience in dealing with donor relations and external funding, and they are well prepared to receive donor funding from Norway or other donors.

In the longer-term sustainability could be secured if the Ministry of Works took over the responsibility to ensure adequate funding for the female trainees in the SEAP. If this is

not a viable option with regards to the government's financial situation establishing a loan arrangement with the existing Higher Education Loans Board or other suitable actors could be considered. The trainees could then receive a repayable loan to cover the cost of the SEAP training. A number of different lending and stipend models could be envisaged in order to enhance female participation. Giving loans instead of allowances would require less funding, but there may also be potential disadvantages of such an arrangement, which needs to be assessed carefully before deciding whether or not this is a realistic and functional option.

Another issue that came up during the discussions with several stakeholders is the length of the trainee period. After studying for three or four years to become an engineer it is necessary to go through another three years as a trainee with little or no income. All together this constitutes many years without a proper salary. Since we know that many engineers drop out of the training programme due to financial constraints it could be worthwhile looking into the possibility of shortening the trainee period. Some respondents argued that the engineering degrees could be made more relevant to the practical needs of the industries and thereby reduce the length of the practical training needed for the trainee period. This is, of course, a long-term endeavour, and it may require substantial changes with more practical exposure in the university education.

SEAP trainee Martha Daniel supervising workers at a construction site in Dar es Salaam.

3.5. Efficiency

3.5.1. The use of existing structures

The main feature of the project efficiency is the fact that the Norwegian support is channelled through existing structures of the SEAP programme. There are no additional funds spent on project administration, staff or rental of office premises to manage the Norwegian support. There is 'value for money' by exploiting the existing structures and human resources in ERB, whose salaries are covered by government funds to handle the management of the Norwegian funds. However, the additional work of administering the Norwegian support is a burden on the SEAP staff. Some funds have been provided to capacitate ERB in financial management, but there is insufficient staff to handle both the regular SEAP program and the Norwegian project. Staff lacks time and transport to perform monitoring visits outside of Dar es Salaam. In addition to the extra workload with the management of the Norwegian support comes additional reporting requirements from the Embassy. ERB is in the process of recruiting a new staff member to work on the SEAP program, which may enhance programme delivery.

3.5.2. Efficiency of allowances, transport, workshops and study trips

The main component of the project is the payment of allowances, including training materials, transport and support to attend workshops, courses and study trips to female trainees. The funds spent on allowances account for nearly 90 percent of the total budget. It must be considered to be cost-efficient as the amount is on the low side, and hardly enough to cover basic subsistence expenses, but enough to retain the women on the program without dropping out. The payment of the allowances significantly increases the likelihood of retainment of the female trainees towards becoming registered engineers. The total costs per trainee is around US$ 8000[14], which overall must be seen as a modest amount per individual divided by three years of training.

The workshop and study trips are costly[15] compared to the size of the monthly subsistence allowance[16]. However, the workshop and study strips combine various activities back to back, including private meetings between trainees and their mentors and monitoring visits by SEAP staff, and thus reduces on time and travel costs compared to organising these as separate events. The workshops and study trips have been carried out according to plans and on time. The female trainees talked to emphasised the importance of the exposure and experience gained through the trips.

The purpose of providing allowance is to fast-track the female graduates. Although most trainees will register as engineers within the three years provided for, delays have happened for various reasons, including the lack of timely payment of allowances from ERB. The project should aim to secure that allowances are paid on time to increase the likelihood of retainment of female trainees.

It is difficult to find comparable alternatives to the allowance support provided by the RNE to assist the female trainees towards their engineering license against which the

[14] allowance, transport, workshops, study trips
[15] 16,000 USD for 89 trainees for the workshop in Mtwara
[16] 17,800 USD for 89 trainees

project's efficiency could have been evaluated. However, comparing the rate of registered female trainees who received the Norwegian allowance with those who registered without any financial support will give an idea of how important the allowance is. There is a strong relation between receiving the Norwegian allowance and becoming registered as opposed to the female trainees without any financial support, who are much less likely to become registered.

3.5.3. Efficiency of funds to strengthen professional associations and advocacy

A small portion of the budget[17] is spent on support to develop the professional associations and advocacy forums for female engineers, including sensitisation workshops, technical assistance and annual seminars. The support to the Women's Chapter of the IET, a professional association of engineers, has been effective, as all female trainees have become members. However, it is difficult to assess whether this support was necessary for the females to become members of the association. According to ERB staff they would as a standard procedure send a letter to the IET and get the trainee registered as a member once they had completed the final registration as an engineer.

3.5.4. Efficiency of funds to develop mentorship capacity

The role of the mentor is critical as the mentor is responsible for guiding the student in the day-to-day work, to supervise, follow-up and approve the trainees' reports. The mentors do not get remunerated for their services. Instead, they are rewarded with points that will help them renew their engineer licence. There is an expectation that the mentors take on the task out of morality and duty. However, considering the importance of the mentor's role, their ability to teach and their understanding of the assignment, the lack of financial compensation should be investigated to see whether there is room for enhancing efficiency through symbolic payments.

The reviewers, who review the reports and clears trainees for registration at the end of the trainee period, do receive a token amount per reviewed report. Although the reviewers are remunerated as opposed to the mentors, the time between the submission of the final report and obtaining the registration as a professional engineer has been unnecessary long for many candidates. This final registration process should be vetted to ensure that it is conducted in the most time-efficient manner, allowing trainees to become registered within the designated three years period.

Although the mentors do not receive a salary, the training of mentors is costly. ERB spends around US$ 300 per mentor for one training. The training of mentors is important to ensure that they are sufficiently prepared to take on the task of supervising trainees and commitment to follow-up trainees towards their registration, but there is reason to investigate if funds could have been used more efficiently towards this objective.

The international study tour to Norway planned for two female mentors was cancelled by the RNE and funds were re-budgeted to a study trip inside Tanzania for a group of Norwegian supported trainees and female mentors. The latter is clearly more cost-

[17] 5%

efficient, and the re-direction of funds demonstrates how the RNE has been active to ensure that funds have been spent in the most cost-efficient manner.

3.5.5. Efficiency of funds to strengthen the department of Professional Development Affairs (PDA) at ERB

The ERB has purchased office equipment[18], while the planned management training remains to be provided for the PDA staff. The latter is planned to take place during the remaining period of the project. Clearly, the support to strengthen the capacity at ERB to manage the project could have been more efficient if it had been given early on in the project phase. This would have ensured that the Norwegian support benefitted from the capacity building. Capacity building of the staff could potentially greatly enhance efficiency of project delivery and should be prioritised in the remaining support period.

3.6. Strengths and weaknesses of the implementing partner – ways to improve project delivery

The SEAP programme and the Norwegian project is administered by the department of Professional Development Affairs (PDA), one of the ERB secretariat's four departments. Three staff members are managing the SEAP programme, including the Norwegian project, among other tasks. The day-to-day activities are handled by the training officer and one assistant. The main activities relate to the selection and admission of trainees, organising trainee and mentors trainings, managing payment of allowances, managing trainee reports, identification of employers/training placements and mentors for trainees, graduation of the trainees, and reporting to the Board and the RNE on the programme progress. The ERB Employment office assist the registered engineers in finding employment.

The ERB Secretariat consists of three committees, a registrar, supporting sections (audit, procurement and legal) and four departments. Out of 27 permanent staff 19 are male (70%) and only eight are female (30%). Within managerial positions, there are five men and no women. The Board of Directors has nine members out of which two are women.

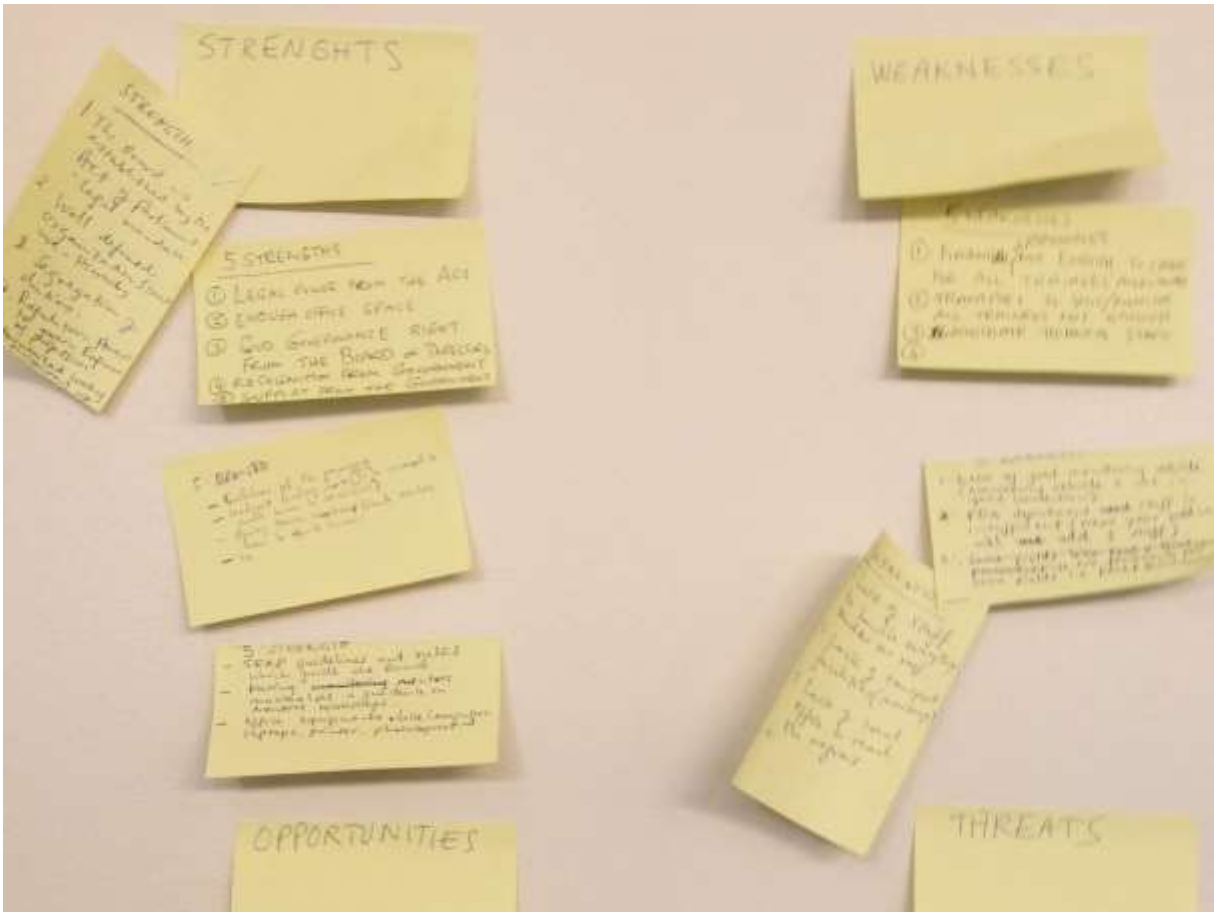
The ERB is located in Dar es Salaam, but there are plans to open up three zonal offices to reach trainees in different parts of the country. There are currently financial constraints impeding this expansion.

[18] laptops, UPS and projector

A participatory Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of the ERB was carried out during the field work for this review with input from relevant staff at the Secretariat, including the PDA staff responsible for implementing the programme. The result of the exercise is summarised below:

Strengths	Weaknesses
• **Strong legal power/mandate:** power to regulate the Engineering profession in Tanzania • Financial support and recognition from the government • Good governance, well-defined organisational structure and set-up • **Systems for financial and programme management in place**: programme guidelines and manuals, programme policies and procedures, including selection criteria, segregation of duties, • Infrastructure, office equipment • Independent and autonomous role • Relevant network • Qualified staff	• **Understaffed:** few staff to manage a large programme with placements across the country • Lack of system for data information management and reporting • Lack of transport for monitoring visits to trainees placed outside of Dar es Salaam • Lack of zonal offices to reach the regions outside of Dar es Salaam • Lack financial resources to cater for all trainees' allowances • Lack of known procedures for reporting suspicions of financial irregularities or other misconduct (for staff and trainees) • Lack of gender awareness
Opportunities	**Threats**
• **Additional funding opportunities** from other sources in Ministry and other donor agencies • Recruitment of one additional staff will strengthen capacity to manage programme • Expansion of universities will lead to increased enrolment in SEAP programme • Strengthen gender perspectives in the regular SEAP programme/ERB work • Increase funding of allowances/transport by employers • Offer loan schemes instead of allowances could raise sustainability	• **Cease of funding** will affect female enrolment • Male counterparts demand same allowance rate as female engineers supported by RNE • Competing programmes being offered by other organisations (so far not the case) • Employers hire non-registered engineers

A critical strength of ERB is its' clear, exclusive legal mandate to regulate the conduct of engineers and to provide for their registration. To qualify for registration in the categories of professional and technician engineers one has to acquire adequate professional competence and experience in areas specified by the Board. ERB is autonomous and experience little interference from the Ministry of Works in their daily work. The ERB is involved with the development of the curriculum for the engineering studies in collaboration with the higher education institutions and the national accreditation agency. The ERB seem well placed and enjoys legitimacy among various stakeholders.



Excerpt from the focus group discussion with the SWOT analysis.

Secondly, ERB is well organised, with a clear structure, rules and routines. The ERB follows a hierarchical organisational set-up where the Board of Directors has decision-making power. This includes approval of all students admitted to the SEAP programme. The coordination between the Board and the Secretariat appears to be efficient and the PDA department seems to have a good understanding of its own role and responsibility.

The Ministry of Works pays staff salaries and rental of office premises, but this only makes up 30 percent of the running costs of ERB. The rest is covered by token contributions from registered engineers. Due to financial constraints, only a small share of trainees receive the government's trainee allowance of 100 USD per month.

The clear weakness of ERB is the understaffed training department. The SEAP programme covers a large geographical area and there are many trainees, mentors and employers to follow up. The lack of transportation further deteriorates the situation, as there are limited possibilities for staff to conduct monitoring visits. Many trainees in the districts complain that ERB never visits their company. The lack of up to date ICT and stable internet connections at the placements may provide further barriers in communication with these trainees. There are plans to open up zonal offices to provide better services, but this seems unlikely to happen without additional funding from the government. There are concrete plans to recruit one additional staff to work on the SEAP programme. This would improve programme delivery.

Moreover, the organisation lacks computerized reporting tools and systems for data information management.

Although the staff in the training department are competent, there is inadequate gender knowledge and lack of a coherent gender perspective in their work. The Chairman of the Board of Directors suggested to the review team to revise the SEAP programme with the view to integrate a stronger gender equality focus in the programme, beyond the current additional scores for females in the selection criteria. He proposed a review by the board to make the SEAP programme more gender friendly. Gender training for staff could serve as a remedial to the current situation. The proposed review should also look into the gender imbalance among the ERB staff and the Board of Directors.


Mr. Odemari N. Rushita explaining the ERB structure.

In conclusion, there are not sufficient financial and human resources in ERB to ensure high quality implementation of a programme of this size. The lack of resources affects the ability of staff to effectively monitor trainees, mentors and host institutions. There is a risk that the lack of capacity to follow-up of on female trainees in the districts may increase drop-outs and delays.

4. EXIT, CONCLUSIONS AND RECOMMENDATIONS

4.1. Exit strategy

The support by the RNE to female engineers through the SEAP programme has contributed to increase the number of registered female engineers. This will subsequently contribute to an improved gender balance in the engineering field in the country, and the visibility of the female engineers will keep growing as they mature and become mentors and supervisors. In due time some may enter into management and decision making positions. The success of the project does not, however, mean that the problem is alleviated and that the support to female engineers should come to an end. On the contrary, as female engineers continue to be very few compared to the number of male engineers there is still a long way to go and a need for further interventions. This logic calls for two issues to be discussed; One is how to ensure an adequate exit of the current project, and the other is to look into potential ways of continuing to support the registration process for female engineers after the Norwegian funded project comes to an end.

4.1.1. Exit of the current project

At the time of the field work for this review the project is scheduled to end in mid 2015, and it was made clear from the beginning that further support from RNE was not likely. An exit strategy was to be developed towards the end of the project. Due to the unforeseen delays faced by the project and subsequent unspent funding, ERB has requested a two-year no-cost extension with budget and work plan outlined for the period of July 2015 – June 2017[19].

According to ERB's plans there are 36 female trainees receiving Norwegian funding who will finish their trainee period in June 2017. As we have seen, the drop out-rates for female trainees without any subsistence allowances are significantly higher than for those receiving support. If the project is brought to an end sooner than June 2017 there is a risk that a number of the trainees who are receiving the Norwegian support now will not manage to complete their trainee period and become registered engineers. Therefore, in order to ensure the highest possible success rate of the programme with most of the women trainees able to complete the programme and become registered engineers, a two-year extension is needed.

Plan for finalisation of trainees in SEAP programme:

Finalisation by June 2015	23
Finalisation by June 2016	22
Finalisation by December 2016	24
Finalisation by June 2017	36

[19] At the time of the writing of the final report an extension until the end of 2016 has been approved (Addendum signed on June 17th 2015)

4.1.2. Possible continuation of support to female SEAP trainees

It would be ideal if the Government of Tanzania through the Ministry of Works took on the responsibility to secure extra funding for the female engineers in SEAP. In the team's discussion with the Ministry of Works the possibility of funding the female engineers through the Ministry's Women's Participation Unit was brought up. This and other government funding possibilities should be explored further in a continued dialogue between the Ministry and ERB.

In the meantime ERB should continue discussing possible future funding with the RNE and approach other donors in order to secure continued funding to the female trainees. ERB has already started informal dialogues with another donor, which is encouraging.

4.2. Conclusion

To sum up, the team finds the project to be excellent when all components work well. It has helped fast tracking many female engineers to obtain their registration as professional engineers by providing adequate placements, necessary allowances, qualified mentors, invaluable trainings and exposure visits. Despite the fact that the project is subject to relatively substantial delays, it is likely to achieve the set goals if only given some extra time to fulfil the task.

However, as much as the project is good when it works well, there is room for improvement in some areas. Slight changes might enhance the quality of the project and ensure that it works well not only for some, but for all the female trainees receiving funding from the RNE. This partly relates to the follow up of the trainees, as some of them are not given relevant experience, exposure and responsibilities in their workplace, and some trainees experience lack of interest and feed-back from their mentors. ERB are doing what they can, but have too few staff to follow up and ensure high quality at all levels for all the trainees.

The main reason for dropping out of the SEAP programme is lack of funding, and this seems to be more important for women than for men. The Norwegian funded project clearly demonstrates that the extra funding given to the female trainees is key to ensure that they complete the trainee period and become registered engineers in the shortest possible time. When comparing drop-out rates among the female SEAP trainees with and without the Norwegian funding, a clear pattern emerges showing that the project has managed to balance the fine line of providing sufficient funding to keep the trainees in the programme.

The efficiency of the program is good compared to what has been achieved and the funds and resources invested in the project. The total cost per trainee is relatively modest. There is, however, potential to improve the efficiency of the mentors' training by looking into possible cost reductions and ensuring that all female and male mentors are trained.

In order to increase the sustainability of the project as well as the quality of the SEAP, gender should be mainstreamed into SEAP. This may potentially contribute to reduced discrimination and harassment, and increased number of females enrolled in the programme, and reduced drop-outs. It would, however, not solve the financial difficulties that the female trainees face, and therefore sustained financial assistance to the female trainees is still needed. The government of Tanzania should take on this responsibility, however, in the meantime other sources of funding should be sought.

4.3. Recommendations

8. **Exit strategy**
   It is recommended that a two-year no-cost extension is granted as requested by ERB. If this is not possible the RNE and ERB should engage in detailed discussions on how to avoid drop-outs among the women scheduled to finish the trainee programme in 2017.

9. **Continued funding**
   ERB should continue the dialogue with the Ministry of Works in order to explore how the government can take over the responsibility for ensuring the participation of female trainees in the SEAP. The Ministry of Works should look for ways to increase their funding to SEAP in general and to female participants in particular, possibly through their Women's Participation Unit. In the meantime, ERB should actively work to secure funding from other sources such as the RNE or other donors in order to ensure continued funding to the female trainees. In the case of a new phase of the support to female trainees the logical framework should be revised to improve the inherent logics of the components of the project and the consistency between the goals, objectives, outcomes and outputs.

10. **Strengthen the general capacity of ERB**
    ERB is suffering from the lack of financial and human resources to adequately follow up each SEAP trainee, mentor and host institution. As for the support for the female trainees it is recommended to increase the number of staff to be able to follow up the female trainees and ensure that they get relevant work experience, that they have mentors who supervise them in an adequate way, that they submit their final reports and when necessary, that they receive assistance when seeking employment.

11. **Strengthen the gender capacity of the ERB**
    The ERB training department staff working directly with the project should be equipped with improved gender knowledge, awareness and skills. Gender trainers could be identified among Women's NGOs or within academia.

12. **Strengthen the general capacity of the mentors**
    ERB should ensure that all active mentors have adequate knowledge about the mentoring role and that they attend the capacity building workshops.

13. **Strengthen the gender capacity of the mentors**
    Gender knowledge and awareness of issues such as sexual harassment, discrimination and being a female in a male dominated workplace should be a topic covered in all mentor's capacity building workshops.

14. **Mainstreaming gender into SEAP**
    In order to enhance the sustainability of the support to the female trainees as well as improve the quality of the SEAP gender should be mainstreamed into

the SEAP. This would entail revising the SEAP guidelines and ensuring that gender equality issues are part of all trainings for female and male mentors and trainees. A code of conduct for trainees, mentors and host institutions and a reporting mechanism for reporting discrimination and harassment should be developed and clearly communicated to all parties involved in the SEAP. External gender expertise should be hired to assist with this task.

Long term recommendations:

The following recommendations go beyond the scope of the support to the female trainees, but they are still included here as these issues were brought up several times during the review process and may be worth considering in a long term perspective.

1. Due to the lack of funding for the SEAP in general and the female trainees in particular, a loan arrangement should be considered.
2. The ERB should liaise with the Tanzania Universities Commission (TUC) and the universities to explore the possibility of having some of the required practical competences incorporated into the university curriculum so that graduate engineers may be able to spend less time (eg 2years instead of 3) as trainees undergoing SEAP.
3. Measures should be taken to ensure that more girls choose maths and science in school so that more girls have the possibility to choose an engineering career.

Annex 1 List of people met

	LIST OF PEOPLE MET		
	INSTITUTION	**NAME**	**POSITION**
1	Royal Norwegian Embassy RNE	Siri Frette Allsted	Councillor Aid Administration
2	Royal Norwegian Embassy RNE	Monica Backer Grondahl Blaalid	Programme Officer
3	Engineer's Registration Board ERB	Benedict C. Mukama	Assistant Registar PDA (M)
4	Engineer's Registration Board ERB	Odemari N. Rushita	Assistant Registar FA (M)
5	Engineer's Registration Board ERB	Veronica Ninalwo	Senior Training Officer
6	Engineer's Registration Board ERB	Joshua Njulumi	CPD Programme Officer (M)
7	Contractors Registration Board	Bhoke Magara	PE received RNE support
8	SMEC (Consulting Firm)	Angela Genes	SEAP Trainee receiving RNE support
9	TEMESA	Zuhura Said	SEAP Trainee receiving RNE support
10	TEMESA	A.M.S. Ussiri	Employer Reprisentative (M)
11	TAA	Diana Munubi	SEAP Trainee receiving RNE support
12	TAA	Mr. Mbila Mdemu	PE, Supervisor for Diana, not trained yet (M)
13	TAA	Neema Joseph	PE, ERB Trained Mentor
14	TCAA	Charity Kasubi	SEAP Trainee receiving RNE support
15	Independent Engineer	Eng. Ndazi	PE, ERB Trained Mentor for Charity (M)
16	Group 6 International (Const Firm)	Martha Daniel	SEAP Trainee receiving RNE support
17	TANROADS Kibaha	Bahati Raphael	SEAP Trainee receiving RNE support

18	SIHEBS Technologies	Mbutolwe Mwakyosi	SEAP Trainee receiving RNE support
19	SICRO SITEWATCH	Regina Mwadia	SEAP Trainee NOT receiving RNE support
20	ENV BENCHMARK	Lynder Gesasi	SEAP Trainee NOT receiving RNE support
21	LAKE CEMENT	Zamna Patrick	SEAP Trainee NOT receiving RNE support
22	TANESCO	Tulimyake Lazarus	SEAP Trainee receiving RNE support
23	KINONDONI MC	Juliana Lyimo	PE received RNE support
24	TANROADS Kibaha	Salome Kitinya	PE Did not go through SEAP
25	JTM Consultants	Jamila Kibugila	PE received RNE support
26	CoET UDSM	Ignas Rubaratuka	Principal College of Engineering & Technology (M)
27	Veronica Martine	Veronica Martine	SEAP Dropout
28	ERB	Ninatubu Lema	ERB Board Chairman (M)
29	IET	Swaleh N.A.Kassera	Executive Secretary (M)
30	IET	Amos Ndaro	Finance and Administration Officer (M)
31	Ministry of Works	Joseph Nyamhanga	Deputy Permanent Secretary (M)

Annex 2 References

Documents related to the project:

- *Women in energy in Tanzania, Esther M. Masunzu, March-April 2009*
- *Proposal for financial support to professional development for women engineers in Tanzania, October 9 2009*
- *Project results matrix*
- *Report on the Appraisal of the proposal for professional development of women engineers in Tanzania, Esther masunzu 11.12.2009*
- *Decision Document 22.04.2010*
- *Contract between the Norwegian MFA and ERB, May 5 2010*
- *Addendum no. 1. to contract, 10.06.2011*
- *Addendum no. 2. to agreement 17.04.2015*
- *Decision Document for additional funding of 2.4 mill NOK, 07.06.2011*
- *1st Annual Meeting between the RNE and the ERB, June 13 2011*
- *Minutes of the 1st inception meeting between MFA, Norway and ERB October 2013.*
- *2nd Annual Meeting between the RNE and the ERB, February 2013*
- *Minutes of the 2nd annual meeting of the RNE and the ERB of February 14th 2013*
- *3rd Annual meeting between the RNE and the ERB, 17.06.2014*
- *Minutes of the 3rd annual meeting of the RNE and the ERB of Nov 28th 2014*
- *SEAP mentors Workshops manual, final draft, March 2012*
- *Report on mentors workshop held at the Forest Hill Motel, Mbeya, 22.11.2011*
- *Note to file with explanations of the status of female trainees in SEAP from 2010-2013, 10.11.2014*
- *Request for extension of the agreement, including budget and work plan for the period July 2015-June 2017, May 20, 2015 and May 29, 2015*
- *Addendum signed on June 17th 2015*
- *ERB Special News Letter, 25. May 2015*
- *ERB organisation chart*
- *Various lists of SEAP trainees under Norwegian support.*

Other documents reviewed:

- *Minutes of the 1st Tanzania Women Engineers Convention and Exhibition Committee meeting 05.05.2015*
- *Annual report, College of Engineering and Technology, University of Dar es Salaam 2013-14*
- *Policy on Women and Development in Tanzania*
- *Tanzania National Gender Policy and Strategy*
- *National Higher Education Policy, Tanzania*
- *Tanzania Development Vision 2025*
- *Open working Group Proposal for SDGs*

- *Norwegian Action Plan for Womens's Rights and Gender Equality in Foreign and Development Policy 2013-15*
- *Meld. St. 35 (2014–2015) - Working together: Private sector development in Norwegian development cooperation*
- *Meld. St. 10 (2014-2015) - Opportunities for All: Human Rights in Norway's Foreign Policy and Development Cooperation*
- *Meld. St. 25 (2013-2014) - Education for Development*
- *World Development Report 2013 (World Bank) and progress of the World's Women 2015-16 (UN Women)*

Annex 3 Terms of Reference

ROYAL NORWEGIAN EMBASSY, Dar es Salaam, TANZANIA

TERMS OF REFERENCE

Mid-term review of Structured Engineers Apprenticeship Program (SEAP), implemented by Engineers Registration Board (ERB).

1. BACKGROUND

The Engineers Registration Board (ERB) is implementing a five-year programme support for the professional development of women engineers in Tanzania through their Structured Engineers Apprenticeship Program (SEAP). The original proposal was developed based on the recommendations from the mapping survey on Women and Energy as commissioned by RNE in March 2009. The original idea of targeting female engineers stem from an external evaluation done by Structured Engineers Apprenticeship Program (SEAP) in 2008 where the Board was challenged to train more female engineers.

The Royal Norwegian Embassy (RNE) is providing financial support to ERB to implement the SEAP programme for strengthening the capacity of female engineers and supporting their full registration as registered professional engineers. The programme will last 5 years from 2010 until 2015, with the implementation phase starting in 2010. The goal of the SEAP programme is: *'To contribute to sustainable socio-economic development in Tanzania by promoting gender balance in professional training and empowering women engineers to confidently hold and manage professional responsibilities in government, industry and business.*

Specific objectives of the project are:

5. Support professional training of graduate women engineers in Tanzania through the Structured Engineers Apprenticeship Programme of the ERB.
6. Strengthen professional associations and advocacy forums of women engineers in Tanzania.
7. Develop national capacity to effectively supervise and mentor SEAP trainees through comprehensive mentorship training of SEAP supervisors.
8. Strengthen capacity of ERB to promote initial and continuing professional development of women engineers through technical assistance to the Board's directorate of Professional Development Affairs (PDA).

Programme outcomes

The main outcome of the project is 291 graduate female engineers enrolled in the Structured Engineers Apprenticeship Programme (SEAP) trained and registered as professional engineers within a period of 5 years beginning 2010.

2. PURPOSE OF THE REVIEW

The Embassy has requested Norad to undertake a midterm review of the programme to assess the progress and give recommendations on the best ways to make the programme meet its objectives.

The purpose of midterm review is to contribute to the quality and delivery of the programme, as the findings from the review will be used to guide the implementation of the remaining part of the SEAP programme.

The tasks of the consultants shall include:

6. To determine the extent to which the goal and specific objectives of the programme, as defined in the logical framework, have been achieved by the date of the review, and assess the likelihood of achieving them upon project completion.
7. To identify the strengths and weaknesses of the implementing partner, and identify potential ways to improve the programme delivery.
8. To assess the continued relevance, sustainability, efficiency, and effectiveness of the programme in improving gender balance within the engineering profession in targeted programme areas.
9. To provide recommendations for improving the execution in the remaining period of the project, and thus the likelihood of achieving its set goal, purpose, outputs etc.
10. To provide recommendations on an exit strategy as requested in the Decision Document of April 2010.

Relevance of review

The review will be used to inform the Norwegian Embassy, ERB and other programme partners and stakeholders about the program progress, lessons learned and recommendations for future implementation. Findings from the review will be used in the daily running and improvement of the programme, as well as for the final programme evaluation.

The findings, lessons learned and recommendations will serve as the building blocks for institutionalizing the capacity development of ERB in the remaining period.

3. SCOPE OF WORK / PRIORITY ISSUES

The objective of the review is to assess progress and provide recommendations on how to improve the deliveries in the remaining part of the programme. The review should review the relevance, sustainability, effectiveness, and efficiency as compared to the programme goals, purpose, outputs and resource input:

Relevance: To assess the extent to which the objectives of the programme (to bridge the gender gap and empower female engineers to take up professional roles) are consistent with beneficiaries' requirements, Tanzanian needs, Norwegian policies and global priorities.

Sustainability: To assess whether there will be a continuation of benefits from the programme after the Norwegian support to the SEAP programme has been completed.

Effectiveness: To assess the extent to which the purpose of the programme has been achieved, or is expected to be achieved. The review should look at the positive and negative, primary and secondary results produced so far and the likelihood of being produced by the end of the programme directly or indirectly, intended or unintended.

Efficiency: To assess to what extent economical resources and inputs in terms of funds, expertise and time are converted to outputs.

4. IMPLEMENTATION OF THE REVIEW

The review methodology should include a combination of

6. Review of relevant documents
7. Consultations with relevant stakeholders including the Royal Norwegian Embassy, selected host institutions where the female engineers do their practical works and the Ministry of Works, as well as a selection of the trainees themselves
8. Preparation of a draft review report to be commented on by the RNE and ERB
9. Finalisation of the review report in English for submission to the RNE

The Review team

The review team will consist of two people from Norad and one local consultant. The team should display the following qualifications:

1. Documented evaluation competence, and knowledge on the related socio-economic programmes. The evaluation competence should be based on fieldwork and knowledge of the relevant Tanzanian context by personal experience.
2. Documented research competence and experience in Tanzania within engineering fields and engagement in autonomous or semi-autonomous public organizations.
3. Publications on the issues documenting the competence and experiences asked for in 1 and 2.

Norad will provide the team leader for the review and have the main responsibility for the final review report.

The local consultant will be hired for 10 days with the following responsibilities:

- Review relevant documents prior to the review mission (1 day)
- Schedule meetings and be responsible for making and updating the review programme (1 day)
- Take part in meetings and provide translation if necessary (5 days)
- Contribute to the writing of the review report (approximate 10 pages) (3 days)
- Be responsible for the people met annex of the report

5. REPORTING

The review team will prepare a report with an executive summary with main conclusions, lessons learned and recommendations. The report will be written in English, and will have a maximum of 30 pages including executive summary and relevant annexes. The work will be conducted in May and June 2015 with a visit to Tanzania from June 1. To June 5. A draft review report should be submitted by July 3. 2015. The Embassy will provide consolidated feedback from RNE and ERB within August 7. and the final report will be submitted by August 14.