

Moving Forward to the Next Decade

Eleven women engineers share their thoughts and aspirations for a better future for their profession

by Zoe Phoon



Datin Ir. Hj. Nor Asiah Othman



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Puan Amnorzahira Amir



Puan Rene'e Aziz Ahmad



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Ir. June Lau Yuk Ma



Ir. Jama'iatul Lailah binti Mohd. Jais



Ir. Mah Siew Kien



Ir. Siti Badriah binti Ishak

Recently, the Women Engineer Section of Institution of Engineers, Malaysia (IEM WE) conducted a survey of women engineers to find out how they see themselves in the future. Matters of major concern include professional growth and accomplishments, career advancement prospects, work and life issues important to career-committed mothers, finding a suitable balance between work and life as well as participation in decision-making.

These issues are very real, especially as the country enters the final leg of its journey towards achieving Vision 2020 as a developed, highly competitive and high income economy.

At the same time, liberalisation of the services sector in the country and across the ASEAN region, brings with it fresh challenges even as it represents a new era of opportunities for engineering and related industries.

The survey respondents include Datin Ir. Nor Asiah Othman, Ir. Dr Leong Wai Yie, Puan Amnorzahira Amir, Dr Habibah @ Norehan Haj Haron, Ir. June Lau Yuk Ma, Puan Rene'e Aziz Ahmad, Ir. Jama'iatul Laila binti Mohd Jais, Ir. Mah Siew Kien, Ir. Khalidah Haron, Prof. Siti Hawa Hamzah and Ir. Badriah binti Ishak.

How do women engineers see themselves five years and more down the road?

Ir. Dr Leong feels that women today are keen to take up challenging work that will benchmark them in male-dominated fields.

There are also new engineering disciplines that require precise, critical thinking and are best suited for women. These include software engineering, multimedia engineering and nanotechnology.

Ir. Hajah Nor Asiah said engineering-based industries have essentially been defined and dominated by men, so women engineers are vastly under-represented in all aspects of the engineering industry. She said women engineers tend to leave their jobs much earlier than men and this is usually due to difficulty in balancing personal and professional responsibilities.

With greater knowledge for exploring and achieving sustainability development in Malaysia, Ms. Amnorzahira sees an interesting future ahead for women engineers while Dr Habibah expects things to get better as more women are currently leaders in their organisations. The only threat that Dr Habibah sees will only "come from the women themselves due to competitiveness and perhaps the nature of women".

Ir. Lau is not expecting any drastic change in the enormous support being given to women engineers at the workplace in the next 10 years; she notes however, that only the strong ones will continue their pursuit but expects them to show extraordinary achievements.

Ir. Jama'iatul said rapid advances in engineering technologies as well as their wide applications and increasing impact on so many facets of human lives demonstrate to women engineers that this will be an exciting field to be in. But she warns that women engineers will become irrelevant in their areas of expertise if they do not keep abreast with the latest knowledge or acquire new skills to adapt to the changing technological environment.

Ir. Khalidah suggests that professional women engineers join forces to make things better. She says: "Be more global in your approach and be versatile. A strategic blueprint on a more holistic approach will positively impact women engineers.

"Instead of competing with the men, women engineers should learn to balance life and the environment with engineering know-how in order to complement one another."

Meanwhile, Prof. Siti Hawa said current statistics from the country's institutions of higher learning show that between 35% and 50% of those in engineering programmes are women. This is significant, as it means that many of the "best and brightest" young Malaysians females are considering a career in engineering.

Quoting statistics, and assuming that the national population is 25 million, she said the country has approximately 80,000 engineers in employment currently. This is a poor engineer to population ratio of 1:312 compared to the benchmark of 1:100 in advance countries.

"To achieve an index comparable with those of developed countries, Malaysia will need some 275,000 engineers by 2020 and 300,000 engineers by 2025, assuming a population growth of 2% annually," she said.

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But, she warned that regardless of gender, all engineers will be facing challenges as there are always new demands in science, engineering and technology. Knowledge and teamwork are key elements in overcoming them, she said.

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Ir. Badriah sees a good future for women engineers. However, she added that it is up to women to make what is best for themselves as "true engineers".

"This is easier said than done because it all depends on the environment. If you work in a healthy office environment where success and acknowledgement are based on performance, then it's a bonus. If you have to rub shoulders to get somewhere, it can be a big problem," she said.

What makes a good woman engineer? What are the challenges she will face?

For Ir. Dr Leong, good women engineers are those who have truly excelled, not only professionally but also as leaders and role models. They are also able to strike a balance between family and career.

But, she added, without family support, women engineers will not be likely to overcome the many difficulties they face in their career.

Ir. Lau said good women engineers are those who see the big picture, are willing to do whatever it takes, can listen well, are flexible and compassionate, can punch through all perceived obstacles and take the opportunities, who love their team, learn to lead and are willing to take responsibility and be accountable.

Of the challenges, she said there are many. Examples include physical work, night work, site far from home, I miss my kids, I'm not a full-time mum so I feel guilty, limited career prospects (such as doing the same work for five years), getting bored, unfairness/biased evaluations (such as "I do all the work perfectly well but am not up for promotion"), a sense of isolation in a male-dominated field, I can't speak their lingo, lack of women mentors or role models, etc.

These challenges are real because "you believe they rule you" but, she noted, "the real challenges are often the women themselves".

"We have fears. At times, we lose our self-confidence and we dislike conflicts. I tell you to take charge and be yourself. Talk it out and walk the talk. Find your sense of belonging in all assignments given to you or you can create, because you are the engineer," she said.

Ir. Nor Asiah said women engineers should have strong work ethics and stay focused. They must be independent, confident and maintain a professional attitude. They must also be effective as role models and leaders in their field.

Challenges are aplenty though as women engineers face a lot more discouragement at the workplace than men engineers and there is the added factor of balancing career and family.

Prof. Siti Hawa said employers look for graduates with a broader set of skills such as those who have acquired specified knowledge profiles that make them technically proficient engineering graduates whose education extends to both technical and non-technical areas.

"To be competent, women engineers have to grab opportunities and equipped themselves with skills in communication, collaboration, cultural adaptation, critical thinking and problem solving as well as be innovative," she said.

"When a woman engineer has adequate knowledge and skills, challenges turn into pleasures. At the end of the day, any competent engineer's mission is to produce quality work beyond expectations."

For Ir. Badriah, "it is all about knowledge, having good management skills and teamwork".

She explains: "You put a good woman engineer anywhere and she will perform because she can make the best out of people and yet shine in her exceptional capabilities. She can lead when needed or follow when there is someone better."

The government is hoping to achieve the objective of having women hold 30% of decision-making posts.

Ir. Nor Asiah said: "Women engineers don't want to be promoted just because they are women. They want to be accepted, challenged and rewarded on their own merits. Women engineers are committed to growth and self-improvement and are capable of assuming great leadership roles."

The government must highlight to the public that the engineering profession is all about trained problem solvers, whether male or female, she added. Ir. Dr Leong said the 30% quota is encouraging and, given the opportunities, it is achievable in the engineering industry.

"IEM WE can play a leading role to actively pursue the government's objective and to establish a work plan or work programme together with the various government sectors," suggested Ir. Lau. "IEM WE can be the main agent to work together with the government and the corporate world for the success of the engineering industry. Otherwise, I'd say this would be hard to achieve."

Ir. Jama'iatul said the crux of the matter is that decision-making posts set aside for women must be filled by those who have proven themselves qualified for those positions. "It will be counter-productive to make exceptions just to fill the quota. Women shouldn't be perceived as less capable or weaker than men. We should strive to be just as capable to compete for higher posts. Ultimately, the best person should fill the vacant post," she said.

Ir. Mah thinks that while it is a good plan, it may be a challenge to achieve the target as the current pool of upper-middle and middle management women engineers is so small compared to the percentage of men engineers in the same position.

Prof. Siti Hawa also agreed that getting women engineers to fill one third of decision-making positions in the industry is not something that will happen soon.

"I estimate this scenario may be visible in another 20 years," she said, noting when she opted to pursue technical education during her secondary school years, there was only a handful of such young women in a class of 100. She graduated in 1983 and had been in the engineering industry for 32 years.

She added: "The ratio of women leaders in engineering is still small, probably 1:10. Hopefully, with the current education and training opportunities open to all, the 30% quota can be achieved by year 2030 at the earliest for the engineering industry."

Ir. Badriah believes that any objective can be achieved. The question though, is whether there are 30% women engineers to fill the decision-making posts.

"We shouldn't fill up the quota just for the sake of filling it up. Get the right people and train them properly first," she suggested.

Some employers hesitate to promote women to higher positions for fear they will resign when they become mothers.

Ir. Dr Leong said promotion should be based on performance as such unnecessary fears will only slow down a company's development.

She said: "Outstanding women engineers would know how to adjust for a work-life balance. There are lots of talented women and if the company cannot provide an alternative work schedule, it's going to lose these talents."

Dr Habibah said that based on observations, working mothers in high ranking positions have been able to cope with the demands of home and workplace.

New mothers perhaps may sacrifice promotion opportunities in the beginning but later, most are willing to make the time away from the family in order to excel at the workplace. But, she admitted, some employers still hesitate to promote women unless they can see the full potential.

Ms. Rene'e said employers who insist on typecasting women this way are shortchanging themselves and will lose out simply because they refuse to give women the opportunity to shine. "At times, women are their own worst enemy where progression of women is concerned. This is why it is important for IEM WE to provide the necessary support," noted Ir. Khalidah.

"Some women will back out; it is their choice. But there are still many who manage to balance their work and family lives well. Some also sacrifice their personal time for the company, much more than even the men."

Employers should be smart in profiling their employees and be smart enough to match job prospects with women engineers who have great potential, she said.

As for the excuse that employers are disinclined to promote women over concerns that they may later resign to be full-time mothers, Prof. Siti Hawa brushed this off as "lame".

"It is understood that any individual, when given the opportunity to take up higher positions and be entrusted with responsibilities, will deliver accordingly. If women engineers decide to accept an offer, deliverables are the key indicators of their performance," she said.

"Take my word for it. Promote them and you will see their dedication and commitment to the company. Most of all, the company will get a loyal woman engineer."

Ir. Badriah felt the onus was on the employer. She cited many ways that a company can retain women engineers in high positions without fear of them resigning. One example is providing a crèche at the workplace; government assistance is available in the form of incentives for companies to set up nurseries.

This brings us to another situation where increased family demands may be the reason why women slow down their career advancement.

Planning is the key, said Ir. Dr Leong. "We need to plan for work-life balance because that won't just happen. I think women engineers have to make time for the things that are important. We have to set aside time from our professional life as it's not to say work can't be flexible."

Ir. Lau said: "Be honest with yourself. Talk to your spouse. Alternative arrangements can always be made. A supportive spouse is the best shoulder to cry on. She said companies can always work out roles to enable women to function with part-time or flexi-time work schedules. This will allow work to continue while creating a sense of belonging.

Prof. Siti Hawa said those who are able to, will want to start a family. Eligibility of being high achievers goes beyond their knowledge and skills. For work-life balance, coping with increased family demands requires good time management and communication with family members. Nurturing and caring for the family, she added, should not be left solely to the women engineers. "An extended family and professional help will be most helpful during household crises. The saying that 'behind every successful man is a supporting woman' applies in reverse to women engineers too," she said.

Ir. Badriah agrees. She said: "You have to have a great husband and, if you are lucky, be surrounded by people who can help pull you through all circumstances."

On gender equality at the workplace, Ms. Rene'e believes this means both women and men need to be empowered and that both should be given the opportunity to hold a leadership position if they are capable of taking on such a responsibility.

Promoting women to leadership positions purely as a show of gender equality, when there are male candidates who are either better suited or better qualified to hold the job, could backfire and erode the credibility of women in leadership positions, she added.

"In the past, women were denied the chance to lead, not because they lacked the capability but because they were women. Even though they had the qualifications and necessary experience, they weren't even allowed to try because of their gender. But today, this is no longer the case," she said.

Ir. Jama'iatul thinks everyone should be given access to knowledge, equal opportunities to gain experience and skills, upgrade oneself in acquiring higher qualifications, participate and contribute to teamwork and decision making as well as be promoted based on merit.

"An organisation benefits if it subscribes to workplace policies and practices free from gender biasness or discrimination," she said.

Ir. Khalidah said: "I have been to many countries and worked with many engineering organisations in Malaysia. Women engineers need not work hard for gender equality at the workplace.

"As for leadership positions, women engineers need to earn it. Does having women in leadership positions help? If those women leaders are not a 'pain in the neck', yes, it does help. But through my own experience, both women and men are equally fair if they are professional and objective.

"Be excellent in character and performance as an individual. The job position is yours. If not, it is not meant to be." Meanwhile, Ir. Nor Asiah said women's contributions and influences are recognised as a vital force in all corridors of power, be these in commerce, industry or the arts. "National women networks such as IEM WE and WP of Badan Ikhtisas Malaysia must maintain a forum where women can develop business, professional and social contacts," she added.

Prof. Siti Hawa said men and women have physiological differences that can make a difference at the workplace. Gender bias does happen but it's according to the sectors in the industry and due to the physiological differences.

She explained that construction sites and offshore platforms employ more men than women while the reverse applies in design offices and the research sector. But as a whole, women engineers have a fair share at the workplace, she said.

"Empowering women engineers in leadership positions may be an appreciation of their functions and contributions to nation building but it may not necessarily promote gender equality as humans are created to complement each other gender-wise. Women engineers must be part of the team," she added.

What are the challenges that impede the professional growth of women engineers?

"The greatest challenge is being open to where life takes you and embracing the opportunities that come along as well as being able to say no to some things, so you don't burn out," said Ir. Dr Leong.

"Outstanding women engineers can stop that voice in their head that is nagging, worrying, obsessing and comparing and

turn it into strength, confidence and purpose so they can live their lives as they have always wanted.”

“We need to stop perpetuating the traditional notion that a woman belongs (and wants to belong) exclusively to the home. Women engineers have to debunk and defy such stereotyping,” said Ir. Jama’iatul.

“If women engineers want to change the way the world perceives us, our strengths and leadership capabilities in all fields of work, as well as to be in higher positions in a corporate environment in order that our voices are heard and not ignored, we need to improve and equip ourselves and step up as women and take the lead.”

She said all these entail having the drive to succeed and be professionally qualified, gaining the relevant experience, working hard and earning people’s trust and respect. “We must abandon feelings of self-doubt; we must not back down from challenges and, when the situation demands, women engineers must take on the role to lead,” she stressed.

Ir. Khalidah wonders if it is a cultural issue and social norm. “By right, men should be the breadwinners, but where are the responsible men? Not all women are lucky to be married to responsible men. Many have no choice but to fend for their family and themselves,” she said.

With the situation the way it is today, opportunities need to be provided fairly to all, she added, stressing that employers need to keep up with current times instead of just blindly following the old societal structure.

Prof. Siti Hawa noted that societal demands and cultural values of Malaysians are shifting from the traditional family structure to wider options which include childcare facilities and household cleaning services.

Studies show that educating girls have resulted in a woman reinvesting 90% of her income into her family compared to only 30% to 40% for a man. Even when a woman stays home when she becomes a mother, she tends to be a better teacher when it comes to helping the children with schoolwork.

Prof. Siti Hawa said that moving forward into year 2030, the switch in gender roles, where women become breadwinners and men become stay-at-home-fathers, will be acceptable.

Should mentors come from the home or the workplace?

Dr Habibah is of the opinion that mentors should not limit their mentees’ capabilities as based on their own; instead they should encourage mentees to advance to their fullest potential.

Ms. Rene’e said mentors can help both women engineers and their male counterparts to excel by bringing out the best in them, adding that it is important that women learn to recognise a good mentor whom they think would suit them and to not be shy in seeking guidance if they feel this will benefit them.

Ir. Jama’iatul believes in mentorship as a crucial development process for someone entering any field of work, particularly fresh graduates.

“I was fortunate that my professional trajectory was helped, influenced and shaped by my mentors when I joined the different sectors related to the wastewater industry. All three

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Ir. June Lau

were vastly capable women engineers who were instrumental in nurturing and instilling confidence and professionalism in me in the realm of engineering.”

Ir. Nor Asiah felt that mentorship provides the most lasting effects. “A mentor is a role model who can inspire us to overcome obstacles and achieve greatness. Engineering is a team effort,” she said.

“As engineers, women work on projects with experts in many fields and people from different backgrounds. We collaborate in difficult situations and strict timelines.

“A mentor can help women set goals high and advise them to stay focused as well as work out a plan for a successful engineering career.”

Last but not least, Ir. Nor Asiah suggested that the government provides more resources or privileges for working women so that they can afford quality childcare. This is particularly crucial for the few who do make it to higher positions in the corporate environment but the burden of domestic responsibilities eventually catches up, making it hard to stay in any role for an extended period of time.

Employees must improve maternity or paternity leave policies at the workplace. Allow those who must, to work from home and communicate electronically, she said.

Prof. Siti Hawa said: “Ideally, when one is positioned as a leader, it is understood that she has the winning formula in terms of arranging the domestic responsibilities. There is only a small percentage of men or women born to be leaders who will hold a high position immediately upon graduation.”

She pointed out the process of climbing the corporate ladder comes with responsibilities for both the company and the family. Over time, the work-life balance will stabilise itself. However, when a choice has to be made between family and company, she believes men and women alike will choose family over company.

“You win some, you lose some. You can’t have it all,” said Ir. Badriah who cites the following scenarios: If you see a woman who has made it to a higher position, it is most likely that she has a small family and that she started a family early. By the time her children are grown up, she will have more time for herself. She lives in an extended family, so her children are taken care of by her elders or other family members. Her husband is very supportive and understands her huge responsibilities at the workplace, so he shares the domestic responsibilities. In the early days of her career, she was probably so good at her job

that her boss allowed her to work from home or to work flexi hours. By the time her children have grown up, she would have more time to focus on work. Or she would be one of the few lucky women who managed to get excellent domestic help or a good reliable nursery.

Whichever it is, Ir. Badriah added that women engineers must be determined and positive in order to go through all obstacles and achieve their ambitions and dreams. ■

Y.Bhg. Datin Ir. Nor Asiah Othman currently serves as Secretary of Women Engineers Section of IEM and is the Vice Chairman of Women Professionals Working Committee for Malaysian Professionals Centre (Balai Mhtisas Malaysia). She holds a B.Eng (Hons) in Civil Engineering from Universiti Teknologi Malaysia and a M.Sc. in Highway Engineering from Heriot-Watt University, UK. She was appointed Head of Design for the East Coast Expressway Project team in 2008. Prior to that, she held a number of road engineering positions including Senior Assistant Director (Roads) of Roads Branch JKR HQ.

Ir. Prof. Dr Siti Hawa Hamzah is a professor at the Faculty of Civil Engineering, UTM. She graduated with a PhD from UKM, MSc in Engineering from University of Kentucky USA and BSc in Engineering from the University of Miami USA. Her areas of expertise include civil engineering and structural engineering.

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Ir. Hajah Khalidah Haron is a freelance trainer, training consultant and Meta coach. She holds a BSc in Electrical Engineering (Power) from UK, and a Master in Human Resource from UPM. She is a certified Training Practitioner, Certified in Training and Development (ITD-UK), Certified Problem Solving Decision Making Trainer (KT-USA), a certified NLP-NS Practitioner (Meta-NLP) and a certified Meta Coach by International Society of Neuro-Semantics, USA. A professional engineer and Member of IEM, she has 32 years of working experience in the corporate world with a career history in Project, Operation, Maintenance and Planning Engineering, as Head of HRD, project leader and consultant with Renior Consulting (Change & Transformation initiatives-Distribution).

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