

IBBC Executive Chairman Baroness Nicholson's address to the Al Kindi Society for Engineers

London, January 10th, 2015

In Iraq, a country very close to my heart, and in which my charity, the AMAR Foundation, has worked for more than 20 years, engineers join doctors at the very pinnacle of the professional tree.

Indeed, those clever enough to have qualified, proudly carry that status as part of their title. Engineer Musaid or Engineer Mohammed carry the same social status as Dr Musaid or Dr Mohammed.

Iraqis are wise people. They know that much of the success of any modern country depends on people like you. Engineers build nations and without them we would – quite literally – not be able to get anywhere!

As the world develops at a dizzying pace, we find that we are relying on engineers more and more, and this also applies to those of us working in the global charity field.

Modern innovations are helping to improve the lives of many millions of the world's poorest people.

With the slight danger of putting you all off you lunch, I am sure we all read in the newspapers or saw on TV, Bill Gates sipping a glass of water made from human waste.

The Omni-processor – which is being tested in Senegal - is an enormous sewage processing machine that turns raw slurry into clean drinking water, electricity and ash.

Built by Janicki Bioenergy, this cleverly engineered technology, solves three problems in one for developing nations.

It provides clean water of course but the next generation of the machine will be able to produce electricity as well, and it disposes of raw sewage in a clean, safe and sustainable manner.

Absolutely brilliant!

If we are to find the answers to global poverty, often caused by extreme weather conditions which prevent crops from being grown and animals to flourish, then machines like the Omni-processor are the way forward.

With that in mind, I believe engineering, science, and technology can solve and have an impact on many social problems, especially in places such as Iraq. It's a nation currently

struggling against a vicious insurgency, emerging from three decades of war and social neglect, but its potential is vast.

Not just in terms of natural resources – we all know it has some of the largest reserves of oil and gas in the world – but also in terms of human resources. It has a young and growing population and the education on offer is some of the best in the Middle East.

So how does Iraq rebuild itself as a regional centre of excellence? A place that produces the very best engineers, scientists and medics?

I believe all of you here today could help. How do we answer these questions?

How can global companies engage with young men and motivate them to improve their uptake of educational opportunities?

How do we encourage communities to let their bright, motivated, and well-educated young women continue on into the workplace to take their rightful places as complete equals of the men?

Reading the Al Kindi vision on your website which is to serve society and make the world a better place by tackling poverty through the creation of Engineering knowledge and the promotion of Science, Engineering and Technology, I believe all of you here today can help to answer those questions.

We know that Iraq has a large population. It's now around 33 million, but 25% live below the poverty line. Sadly, this is a story repeated all over the world today:

- 2.3 billion people have no reliable energy;
- 600 million children do not have a safe and adequate home;
- 1 billion people lack access to a road;
- 2.4 billion people lack sanitation facilities;
- 400 million children (that's 1 in 5) do not have access to safe clean drinking water ;
- \$ 57 trillion needs to be spent on global infrastructure projects today.

Engineering and infrastructure, in all its guises, binds together our prosperity and our day to day quality of life. Without it, we cannot bring clean water to communities, build new homes, schools and hospitals, create the transport links vital to global travel and trade or deliver cleaner forms of renewable energies.

The developing world, and low-income countries require a major increase in infrastructure investment to alleviate growth constraints. In addition to the scale of the requirements, the financing of these infrastructure investments poses a number of challenges in addition to normal commercial and physical risks¹:

- Greenfield infrastructure projects require large risk capital for upfront investment associated with the development and construction phase;
- Social returns often exceeds market returns in the short term, meaning altruism is needed;
- Many projects face risks around revenue streams associated with policy uncertainties and affordability, making many projects unattractive to financial backers.

Where do we need the investment? It is common knowledge that developing countries lack access toⁱⁱ:

- Electricity;
- Water;
- Telecommunication facilities;
- Common transport infrastructures (roads and ports).

Here are some examples of Iraqi engineering projects:

- A 1500 housing unit development planned for Baghdad, 2.5 million new housing units needed to meet demand. The government plans to spend \$5bn in the coming years;
- A new water treatment plant has just been completed at Kufa to provide 50,000 cubic metres of water per day at a cost of \$440 million.
- A new \$129m contract to supply gas turbines and generators to Khormala Power Plant.
- Iraq planning to spend \$70 bn on a national railway project.

The outcome of this infrastructure investment will be better health and education. But tackling these gaps is also associated with the potential role of infrastructure as an engine of long-term economic growth. Indeed, there is a lot of evidence showing the benefit of these investments in terms of growth and productivity. The key point is the poorer the country, the more infrastructure matters!

And this conveniently brings me back to my starting point: short term investment in Iraq infrastructure is essential for the long term benefit of the country.

Let me now conclude my talk by adding some other essential developments we need in Iraq:

- a. Good governance, high standards, integrity/team players at the highest levels, and, high technical and professional skills. Who better to lead by example than the Al Kindi Society of Engineers? Engineers do all these things very well, but they will need financial support, leadership, and encouragement. Creating more engineers? That is a low risk/high gain venture.

- b. Education and Training. The world needs more engineers, so we all need to encourage more entrants into the profession. It is an excellent profession, arguably born in Iraq 10,000 years ago. Any money spent in any education is money very well spent, and probably the best investment.
- c. Corporate social responsibility. You are all most fortunate members of the global community. Please remember others that are not so fortunate. You can make such a difference to people's lives with modest contributions of cash or services. In the case of Iraq today the country is struggling with a massive problem of displaced persons particularly in the KRG where there are thought to be 1.4 million displaced people. Emergency housing, sanitation, utilities and medical facilities have all been required in very short time –an engineering feat of huge proportion. But it is a challenge that engineers would relish. Let them loose!

Let me end by giving you some quotes from famous scientists and engineers, which are relevant to today's infrastructure development.

- Isaac Newton (1642-1727) tells us how engineers can solve most things, but not everything: *'I can calculate the motion of heavenly bodies, but not the madness of people'*.
- And finally Leonardo da Vinci (1452-1519) gives us the final message: *'I have been impressed with the urgency of doing. Knowing is not enough; we must apply. Being willing is not enough; we must do'*.

With the words of the great da Vinci, I will close and thank you for the honour of giving me the opportunity to speak to you.

ⁱ http://www.eib.org/attachments/efs/eibpapers/eibpapers_2010_v15_n02_en.pdf

<http://www.cccep.ac.uk/Publications/Policy/docs/PP-infrastructure-for-development-meeting-the-challenge.pdf>

ⁱⁱ http://www.eib.org/attachments/efs/eibpapers/eibpapers_2010_v15_n02_en.pdf